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Utilization of time-lapse photography and a Checklist to record activities in instructional media centers

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DEDICATION

To Herma Williams, my very best friend and wife, whose love and encouragement provided the motivation enabling me to complete my academic studies; to my mother and father for their prayers and faith; and to my sister and brothers for their constant encouragement.

INTRODUCTION

Historically, two separate components supplied media support services for educational purposes: the library and the audio-visual equipment center. Combining these two components to develop the Instructional Media Center (IMC) has been an innovation in education during the past quarter of a century. According to Erickson (1968), after World War II there was a slow start toward instructional media centers; however, during the late fifties the trend toward instructional media centers was accepted and the contemporary concept of an IMC took form. This combination of two services, organized and directed as one, was a needed improvement to keep pace with the growth of new methods of instruction. Erickson (1968) reports that since the Sputnik Era and the National Defense Education Act, expenditures for educational media have steadily increased.

Due to these developments, the contemporary instructional media center (IMC) reflects current educational trends, modern technology, communication theory, and advanced library science techniques. It also reflects new hardware and a wider range of services.

The combining of the libraries with the audio-visual facilities and trained staff represents an expanded commitment to educational programs designed to meet the developmental needs of students. The American Association for School Librarians (1975) states that:

> Through the use of media, a student acquires and strengthens skills in reading, observing, listening, and communicating ideas. The learner interacts with others, masters knowledges as well as achieves greater self-motivation, discipline, and capacity for self-evaluation (p. 4).

Therefore, the instructional media centers' programs have provided support to supplement the learning experiences of students. The substance of this effort has been the ability of the IMC staff to seek a wide spectrum of resources and provide conditions which assist teachers and learners to meet their objectives. Bomar (1973) recommends that in selecting instructional media, consideration must be given to individual student differences:

> When all media in a given area are available for evaluation, comparison of one with another is possible, and a valid selection can be made of which is better for what purpose and which user (pp. 49, 50).

The current instructional media program staff is more involved in the teaching/learning process than conventional library staff or conventional Audio-Visual staff. However, Shifrin (1975) reported that training programs for librarians are not equally distributed between library science and nonprint media technology. There is still a need for library science education programs to include practical learning experiences with newer materials in all aspects of their courses. Forthergill (as cited in Shifrin, 1973) reports: "For with the appearance of new material it is unlikely that full and effective exploration can be attained without the library staff having some knowledge of the techniques of the apparatus and of the quality of the materials being utilized" (p. 250). Additionally, in many schools the media centers' facilities are seldom equally distributed between print and nonprint media. In most situations, one surpasses the other in emphasis, space, staff, budget and management functions. Studies done on the functions of media

centers tend to bear out their orientation toward printed material. In a study to determine teacher perception of the nonprint climate within a school, Miller (1969) reported that schools having media specialists with training in the print areas had nonprint climates that were significantly less superior to schools having media specialists with training in nonprint areas. Also, Larsen (1971) in studying the manner in which media specialists perceived and discharged their duties concerning selecting and utilization of media, found that:

> . . . media specialists at the time of the study were more print oriented than non-print oriented (p. 1230A).

One primary area of concern is the interpretation of roles of IMC staff and traditional library personnel. Kittilson (1971) states that according to the American Association of School Librarians (1969) print and nonprint media staff have few functional differences. In the American Association of School Librarians (1969), both were named media specialist. However, evidence has shown that these media specialists have basic conceptual differences. Thus, a need exists to explore further the extent and nature of those differences.

Larsen (1971) recommends research into role perception, its effect on changes of media programs, and its relationship with educational needs. In a recent examination of this problem, Ishikawa (1972) agrees with Larsen's assessment, concluding that research supports the view that the use of media materials are correlated with the availability of a well-trained media staff. Miller (1969) believes that one of the most neglected problems in training media

staff is the failure of educational institutions to require sufficient course work in nonprint media. Miller reports:

> Schools should seek out audiovisual coordinators with basic background preparation in audiovisual areas, and not give this responsibility to librarians as an addendum to their print obligations (p. 564A).

Thus, one of the problems facing media staff persons is how to obtain an accurate record of their performance in relation to their self-perceived role and the requirements and needs of the educational institution.

Need for Study

There is a need to study the role perception of the instructional media center program staff among groups within public schools. In the past two decades numerous studies have been conducted on role perception. But Knowlton (1964) reports that most research in media has failed due to design weakness. Reports resulting from media studies by Bingham (1967) and Houde (1971) recommend that study and consideration should be given to measurement devices other than the ones currently used. In addition, Walker and Adelman (1971) suggest that:

> Any single incident has several meanings according to the interpretive framework of the observed (ED 047 506).

They recommend that what is needed is a multi-faceted interpretation of events.

Besides paper and pencil evaluation measurements, one research

technique used by Fanslow (1967) was 35-mm time-lapse photography to obtain an evaluation of teacher classroom activities that could be used for the teacher's improvement. This form of evaluation was selected because Fanslow (1967) concluded that the reason for teachers' blindness to many classroom events could be due to a process of selective perception.

Bingham (1967) in discussing the use of time-lapse photography, as it relates to recording classroom events suggests:

> . . . time-lapse photography appears to be a valuable technique for research projects which seek to gather an accurate record of classroom events which do not depend primarily upon sound or the nuances of verbal communication (p. 2931A).

Houde (1971) also emphasized this concept:

> Generating photographic records of classes will result in changes in student and teacher behavior, providing a teacher with a photo record or with a verbal description of that record will produce additional changes in student and teacher behavior and providing a teacher with the record and with related discussion by a supervisor will tend to produce the greatest gains in teacher and student behavior (p. 1382A).

Documentation of educational events should be a continuous part of teaching and learning situations. Instructional media center programs, like other educational support services, are becoming increasingly complicated by the vast increase in knowledge and technology. The constant flow of information and how it is processed demands careful and continuous reappraisal of instructional practices which includes documentation of the role that instructional media center programs serve in instructional planning and support services.

These studies point to the need to test the validity of a method for documenting educational events through an objective record utilizing a filming technique. It is documented through self studies that library personnel have traditionally had an orientation towards print materials due to larger print than nonprint collections, emphasis on printed materials in the curriculum, and library science training programs with little or no emphasis toward media technology.

Statement of the Problem

The problem was to determine whether the use of a multifacet approach will increase the accuracy of describing IMC programs. This approach required a subjective Checklist record established by groups within a school and a film record established by 16-mm time-lapse photography.

Specific objectives for the study were to:

1. Document the IMC activities by two methods to determine if the perceived roles of the IMC and staff are the same as observed roles through
   a. recording perceptions of an IMC program utilizing an adaptation of Fulton's (1970) Self-Evaluation Checklist, and
   b. recording activities within a school IMC utilizing 16-mm time-lapse photography.
2. Compare Checklist responses and 16-mm time-lapse photography observations to determine relationships.

Definition of Terms

The following definitions were used in the study.

1. I.M.C. - Instructional Media Center or Educational Instructional Resource Center, are interchangeable terms. These terms are used to describe a learning center and/or a program in an educational setting where a full range of print and visual materials, equipment, services, and trained staff are accessible to administrators, teachers, and students (American Association of School Librarians, 1969).
2. Time-lapse photography - Time-lapse photography is a time interval filming technique used to form a visual record by compressing longer periods of time into shorter periods.
3. Media staff - consist of those persons given the title IMC staff and who work in the Media Center.

REVIEW OF LITERATURE

Comprehensive instructional media center programs have been developed to meet the educational needs of students of different abilities and backgrounds and serves as a support system to the educational program. To ensure that these needs are being met, continuous evaluation of the media center is necessary. The media staff uses evaluation of its program as an ongoing process by which to determine its effectiveness. The results from the evaluation provides direction for the future of the program.

The purpose and evaluation of instructional media center (IMC) programs have been the subject of numerous investigations. However, no studies were found which utilized a subjective pencil and paper record and an objective film record for the purpose of characterizing IMC programs.

This review of literature focuses on studies examining several related areas. Specifically, this chapter includes five sections: (1) the purpose and function of the instructional media center, (2) the need for evaluation of instructional media centers, (3) description of instructional media staff, (4) role perception evaluation studies, and (5) time-lapse evaluation studies.

Purpose and Function of the Instructional Media Center

The instructional media center is the term used by the American Association of School Librarians (1969) to designate "a learning center in a school where a full range of print and audio-visual media,

necessary equipment, and services from media specialists are accessible to students and teachers" (p. xv). Hicks and Tillin (1970) suggest that the intent of the American Association of School Librarians was to provide a definition comprehensive enough to encompass all the services, facilities and resources available to students and teachers in an IMC. The media center program presents a unified approach involving all types of media. The basic concept is service to the individual.

Morris (1963) identified one general purpose of instructional media:

> . . . to supplement the teacher through enhancing effectiveness in the classroom and to enhance over-all productivity through instructional media and systems that do not depend upon the teacher for routine execution of many instructional processes or for clerical-mechanical chores (p. 9).

According to Davis (1971),

> The instructional media center (IMC) is sometimes referred to as the instructional materials center, educational resources center, educational services center, library, AV center, or learning materials center (p. xiii).

It is the place where ideas in their multimedia and diverse forms are housed, used, and distributed. It contains learning programs, books, magazines, pamphlets, films, filmstrips, maps, pictures, tapes, recordings, video materials, slides, transparencies, and microfilms. It is more than a storehouse of information. It is a work and learning center for the educational system and it is designed to enhance the teaching-learning process.

Wheeler (as cited in Pearson and Butler, 1973) indicates that the instructional materials center is the successor to a traditional

school library and it provides broader opportunities to learn from a whole galaxy of instructional materials. Davies (1974) suggests that the IMC functions to support, implement, enrich, vitalize, and to humanize the educational program. "Attainment of the educational goal of excellence demands that today's IMC be designed to function as an integral support component of the total instructional process." Davies (1974) concludes that the heart of education is student learning, and responsibility of the instructional media program is to manage knowledge so that learning will become more lasting, significant, more permanently meaningful and more personally satisfying.

> Direct involvement in the instructional process demands that the media center function as a learning laboratory where the students come to work intensively and productively with ideas. The attainment of the educational objective of encouraging and enabling each student to learn how to learn demands not only that substance for thinking be provided but that informed guidance in learning how to think critically, analytically, reflectively, imaginatively, and creatively be provided. The library media center is not a storehouse of prepackaged answers, nor is it a depository of ready-made solutions. Rather, it is a learning laboratory where the resources for thinking and the specialized techniques of thinking are fused into a coherent pattern of learning skill development, refinement and reinforcement (p. 22).

The Need for Evaluation of the Instructional Media Center

Evaluation is a process of making judgments based on evidence in relation to desired changes. It differs from measuring and testing because it basically emphasizes growth toward valid goals in qualitative as well as quantitative characteristics. Implicit in the entire process is a set of standards clearly understood by all who participate.

Accountability is a relevant term used in educational systems today. Evaluation of various aspects of the education system provides a basis for accountability. Evaluation and self-study is recommended by Davies (1974) for instructional media center programs on an annual and continuing basis for building and maintaing functional excellence. Henne (as cited in Davies, 1974) suggests that:

> . . . evaluation, whether self-survey or conducted by outside specialists, involves not only the school librarians but also the administration, faculty, and not infrequently, students and parents. Under any circumstances, evaluations should be constructive in design and intent, with the primary purpose of working with and assisting the school and the librarians to effect improvements in the library, benefiting students and teachers (p. 262).

Erickson (1968) proposes that systematic evaluation is important because of the tendency to lose sight of important long-range goals in the pressure of day-to-day problems. The underlying reasons for evaluation determine the nature of the benefits derived, and the main reason for appraisal is to discover pathways to the improvement of media services. The use of an evaluation process can provide personal growth for those who are involved. It provides a deeper and more critical look at techniques and performance within the instructional media center. Evaluation of the media program may function at a number of identifiable levels of action. Erickson (1968) suggests that in the process of evaluation the media center director, the teachers, the students, the criticalness of the observation, and the nature of the judgments of value are significant. Erickson (1968) recommends the following sources of criteria by means of which a media service program can be evaluated.

(1) leadership principles (the way the director works with people);

(2) service principles (beliefs about what the media program should try to do for each school and each teacher);

(3) principles of learning and teaching and curriculum development (the framework of beliefs for all teachers' decisions);

(4) principles for the utilization of media (the guideposts for relating media to all learning activity);

(5) the roles that media play (different ways they can help teachers teach);

(6) principles of in-service education (desirable ways of building teacher competence locally);

(7) minimum standards for school-building service centers and the central headquarters as well as for facilities and equipment for facilitating teacher use (basic physical environment for operating the service program);

(8) minimum standards for personnel services in each school building (basic professional, technical, and clerical help for teachers);

(9) desirable expansion and growth of services (the rate of growth for meeting instructional needs);

(10) principles of budgeting (the financial support basis for operating a service program); and

(11) principles of public understanding and support (the ways in which professional and lay citizens plan and make recommendations) (pp. 602, 603).

The American Association of School Librarians (AASL) (1975) indicates that the purpose of evaluation is to assess the degree to which goals and objectives have been met and to determine the effectiveness of program elements in relation to their achievement. Evaluation results in the continuation of a program element or its modification or discontinuance; it is the only professional basis

for such decisions. The media staff uses evaluation as an ongoing process by which to determine the effectiveness of the program in achieving stated objectives. The findings of evaluation are applied in planning for program modification, budgeting, staffing, collections development, and public information. Evaluation of experiences and assessments of materials and processes by students and teachers should be an integral part of the school media program. It should be sought by the media staff as they contribute to development and renewal; it should also provide assurances for the media professionals who strive to achieve program goals and objectives. AASL (1975) suggested principles are:

1. Effective planning for media program rests upon adequate evaluation of program elements and it yields information for program planning and improvement.

2. Evaluation is a continuous process, conducted at all levels (district and school), involving both staff and users of the media program.

3. The director of the district media program plans and coordinates internal evaluation of the media program at district and school levels and works with other district personnel in the planning for evaluation of the media program within the context of the total educational program.

4. In addition to continuing evaluation, in-depth evaluations of media program elements are made at periodic intervals.

5. Evaluations conducted by persons or groups outside the school district contribute additional information and insights for program improvement (pp. 58, 59).

Instructional Media Center Staff

With the advent of instructional media centers, many educators have begun to think of the need for training in the area of nonprint educational resources. The educational media field needs to emphasize the competence of trained staff who are capable of implementing the goals and objectives of the instructional media center related to the educational system. Media training should emphasize theory, research, and practical experiences with print and nonprint materials and equipment.

According to Enright (1972), when some librarians realized that the media centers were needed and were with us to stay, some were reported as saying "if my institution wants media in the library, I am going to look for another job." Others felt that new media materials needed to be tested by time and experience. Still others felt threatened because of a lack of preparation and the belief that nonlibrarian positions were often less than professionally respectable. Morris (1963) suggested that due to technological trends of the development and expansion media programs, a new kind of professional was required to provide leadership in design, implementation, and evaluation of programs which made the fullest use of media.

The American Association of School Librarians and the Association for Educational Communications and Technology (ALA/AECT) defined the types of personnel needed for creating and maintaining educational media programs. These persons include the professional and

the support staff. According to the associations,

> The word professional identifies abilities, skills, and knowledges including appropriate academic preparation, a disposition to problem solving, expertise in one or more areas of educational technology or library and information science, personal efficiency, effective human relationships, and participation in professional associations (p. 22).

According to ALA/AECT (1975), "a media specialist has broad professional preparation in education and media and possesses the competencies to initiate and implement a media program" (p. 22). The individual should hold a graduate degree from a program that provided educational training and experiences in library and information science, educational communication, technology and curriculum. Davies (1974) suggests that the role of the media director is to plan and develop directions for the media program, and make recommendations for the improvement of instruction through the school library media program. The director systematically explores current developments and innovations in the field of instructional media. Additional duties are related to continuous planning and initiating the media program to meet the educational goals of the institution and to relate to the media needs of the teachers and students.

Erickson indicates that the media director functions in many roles; as a curriculum worker, he must pursue vigorously his role of supervisor of instruction and/or consultant for both teachers and other school leaders. In the role of technological expert, the media specialist should be able to prescribe and advise with authority selection and use of a wide range of media. The specialist often assumes the role of equipment technician either because of a need or

for in-service training for supportive staff. Therefore, familiarity with the standards of various types of media is necessary.

The American Association of School Librarians and the Association for Educational Communications and Technology (ALA/AECT) suggest that the media specialist should have academic preparation in order to develop competencies relating to:

1. The role of education in society.
2. Theories, principles, and methods of instructional technology.
3. Curriculum development and teaching and learning strategies.
4. Analysis of user characteristics and information needs.
5. Principles of communication.
6. Principles for disseminating and using information.
7. Planning and administering media programs.
8. Materials and information services for children and young adults, including reference and bibliography.
9. Content analysis and oral interpretation of materials.
10. Techniques for guiding users in reading, listening, and viewing.
11. Organization of information, i.e., cataloging and classification.
12. Information processing, storage, and retrieval systems.
13. Media design and production.
14. Interpretation and application of research (pp. 22, 23).

The ALA/AECT (1975) recommends the following as specific duties of the head of the school media program:

1. Develops, proposes, and justifies budget requests for the school media program, in consultation with media staff members, principal, and district media personnel.

2. Assists with the selection of personnel for the school media program.

3. Provides media staff development programs and evaluates staff performance.

4. Provides staff development programs for teachers in the evaluation, selection, and use of materials.

5. Serves as chairman of the media center advisory committee(s).

6. Coordinates the formulation of the school's media selection policy in accordance with district policy.

7. Coordinates the selection, organization, and distribution of materials and equipment.

8. Develops a climate that encourages students and teachers to take full advantage of the media center and its resources.

9. Interprets the school media program to students, faculty, administration, and community. Plans and administers the school media program, working cooperatively with the principal, the district media director, other media staff, and users, delegating duties and appropriate authority to members of the school media staff.

10. Reports to the school administrator and works with administrative staff in planning ways to improve instruction.

11. Sustains lines of communication established by the district media director and consults freely with that office.

12. Plans and implements media program policies.

13. Works with the district media director to coordinate the school media program with other school media centers, libraries, and agencies in the community.

14. Participates in the school's governing committee or council for curriculum and instructional planning.

15. Works as a member of curriculum committees, textbook committees, and other instructional groups (pp. 31, 32).

In addition to the media specialist, director or head of the school media program, the ALA/AECT (1975) indicates that the support staff of the media program consists of technicians and other media aides. These persons are directly "responsible to media professionals, but occupy identified positions with job descriptions that delineate their duties" (p. 23).

ALA/AECT (1975) suggests the title technician as a broad term encompassing persons having competencies in such areas as: graphics production, display, information and materials processing, photographic production, operation and maintenance of instructional equipment, television production, and installation of system components. The general duties of the media technicians are:

1. Assisting in the technical processing of information and materials by performing such tasks as bibliographic searching and processing of materials.

2. Producing graphics and display materials such as transparencies, posters, charts, graphs, displays, exhibits, and materials for television programs.

3. Performing photographic production work such as still photography, motion photography for films and television, developing black-and-white film.

4. Installing system components such as closed-circuit television systems and film chains.

5. Repairing and maintaining equipment.

6. Providing instruction in the operation and use of instructional equipment (p. 24).

Another staff position identified by ALA/AECT (1975) is the media aide. This position requires competencies related to ordering, receipt, maintenance, inventory, production, circulation and

utilization of materials and equipment. The suggested duties of the media aides are:

1. Preparing, processing, and receiving orders.
2. Processing materials.
3. Maintaining records, inventories, and bookkeeping accounts.
4. Typing correspondence, reports, and bibliographies.
5. Locating and retrieving materials and equipment for users and assisting them in using media center resources.
6. Assisting in the production of materials, e.g., transparencies, models, audiotapes.
7. Assisting in the operation and minor repair of equipment and in the maintenance and repair of materials.
8. Shelving, filing, and duplicating materials.
9. Checking lists and bibliographies to determine availability of materials.
10. Performing circulation tasks such as charging, discharging, reserving, booking, scheduling, and delivery of materials and equipment.
11. Responding to the needs and interests of students under the supervision of the head of the media center (pp. 24, 25).

Role Perceptions of Media Specialist

Perception of roles as related to media centers is an area of study that has recently gained the attention of educators. A search of the literature revealed two specific areas: media personnel perceptions of their roles and function, and perceptions of media personnel by administrators, teachers and students.

A study in determining the role performance of the media generalist as perceived by public school administrators and teachers

was done by DiGiammarino (1968). The sample for the study was administrators and teachers from selected suburban school districts at Syracuse University.

Two functions of media personnel were selected for the study: the product concept which views instructional support services as primarily providing materials and equipment for educators; and the process concept which views media professionals as persons capable of working with educators in the design and implementation of learning experiences. The study utilized the simulation technique as a means of gathering data. Content validity and reliability were assessed by staff members.

Answers to four specific questions were sought: (1) do administrators and teachers agree on the role expectations desired of media generalist; (2) can simulation techniques provide meaningful data in establishing media program objectives and personnel requirements; (3) are the data indicative of behaviors which can be utilized in structuring curriculum patterns for the education of a media generalist; (4) is there a relationship between the expectation of a media generalist and the respondent's age, sex, degree, experience, length of service in one building and audio-visual training?

The results indicated that public school administrators generally agree on the importance of both concepts to the instructional process. Data from the administrators group indicated that 55 percent preferred the process concept. In addition, 49 percent of the teachers group desired the process concept. The data results also

supported the simulation technique as a means of gathering information on media programs.

The conclusion of the study substantiated the importance of professional support services to instruction. Professional assistance in locating and obtaining information and the need for assistance in designing and implementing learning experiences could serve as a basis for defining the professional contribution of instructional support personnel to the teaching-learning process and establishing general areas of study for professionalization programs for instructional support personnel.

Blair (1968) conducted a study to determine and compare the perceived behavior of the elementary school media specialist as viewed by the media specialist and selected other groups. In addition the study was to determine the extent of agreement or disagreement on basic responsibilities, basic services and in-service education as viewed by media specialist and alter groups.

A total of 269 individuals within three groups comprised the study: principals, teachers and school media specialists. These respondents were selected from 100 elementary schools in 18 districts in Utah.

The instrument was divided into several parts; (1) personal characteristics; (2) ranking of important services; (3) in-service education; and (4) duties and responsibilities. Frequency counts of the ranking of important services and in-service education were tabulated. To indicate significant differences between the principals

and the other groups a t-test statistical technique was used.

The findings showed that media specialists, teachers and principals were in general agreement regarding the duties and responsibilities performed by the media specialists. There was agreement among the other groups in the areas of assisting teachers in production and utilization of visual materials and involvement in curriculum development that the media specialists should provide a greater service. The other groups perceived the media specialist's behavior as first, helping to analyze teaching needs and second, classifying and cataloging materials. In the area of in-service education the findings revealed that there was a general agreement that the greatest needs existed in evaluation and selection of media, utilizing of media, literature for children, and preparation of visual materials.

Based on the analysis, it was recommended that school districts should establish in-service education workshops in the area of selection and evaluation of media. In addition, teacher training institutions should include selection and evaluation of media as a part of the course of study for elementary teachers. Preservice and in-service education programs on effective utilization of all types of media should be established. Media specialists of the elementary schools responding should be encouraged to become better oriented with the nonprint field of media.

Another study to ascertain the audio-visual climate within a school was developed by Miller (1969). The study was also concerned

with the factors which might have influence on the utilization of audio-visual media in the teaching-learning process. The primary questions of the study were: (1) what are some of the relationships between a school's audio-visual climate and the type of media program in evidence; and (2) what are some relationships between a school's audio-visual climate and the professional training and status of the media personnel. A questionnaire was designed to obtain teachers' perceptions of the audio-visual climates, and was administered to a random selection of teachers in fifty secondary schools in five North Central States.

The results showed that schools have organized audio-visual programs, with released time audio-visual coordinators. Schools having unified media programs had audio-visual climates that did not differ significantly from schools having separate audio-visual and library programs. The background preparation area of the audio-visual coordinator was important for the determination of audio-visual climate. Coordinators with basic preparation in nonprint or audio-visual areas scored significantly higher than print or library science coordinators.

The study recommended that schools should seek out audio-visual coordinators with basic background preparation in the audio-visual areas. Additionally, universities and colleges concerned with preparing media specialists for responsibilities in audio-visual areas should reevaluate their training programs to ensure that sufficient course work is required in the nonprint media areas.

Lewis (1969) developed a study to determine teacher perception in relation to educational media by identifying significant relationships which existed between the teachers' cognitive domain and the teachers' affective domain when educational media were involved in the classroom situation. The independent variables of teachers' age, sex, years of experience, grade level taught, and formal training were tested with the dependent variables of future training plans, and concepts and attitudes of teachers when educational media were involved in the classroom situation.

The instrument was constructed and administered to teachers in a large city school system. A return of 733 instruments were used to analyze the results by Chi-square statistical technique.

The results revealed significance in the following areas: (1) between the age of teachers and basic training plans of wanting to take a summer workshop involving media; (2) between the teacher's sex and awareness of types of media, awareness that the school board provided enough funds for educational media. The findings also indicated that students learned easier when media were used. The conclusion indicated that the school board provided enough budget for educational media. Teachers perceived that educational media are easy to obtain and that they fitted into the curriculum.

Anderson (1970) conducted a study to investigate the correlations of perceptions of public school administrators concerning the role of the secondary school media coordinator. The study evaluated two dimensions: perception of the existing role and perception of

the ideal role.

Forty-one public school districts in Wisconsin were in the sample and superintendents, district media supervisors, secondary principals and media coordinators were included. A sixty item Likert type questionnaire was developed to assess perceptions of the existing and ideal role of the media coordinator.

Eighteen individual hypotheses were put into five major groups of statistical hypotheses. To test the hypotheses the Pearson product moment correlation coefficient was computed for the first four. One-way analysis of variance was computed to test the fifth group.

Only two areas of significance were found. The conclusions indicated that: (1) administrators may serve as a barrier to change, as related to educational media programs due to a high correlation between existing roles and ideal roles of the media coordinator; (2) administrators had little formal preparation in educational media and did not have the necessary expertise on which to base decisions regarding the quality of the media programs; and (3) other educators perceived the media coordinators differently due to their various educational backgrounds.

The primary purpose of a study conducted by Samuels (1971) was to compare the roles and function of professional media personnel identified by prospective employers with curriculums currently being offered by departments of audio-visual education in Pennsylvania. The sample was taken from chief school administrators and from 545 organized public school districts and the eight diocesan

superintendents. A random sample of 109 public school administrators and eight district superintendents were selected for this study. Additionally, 200 academic deans and persons seeking state certification in educational media comprised the sample.

Three separate open-ended and closed response questionnaires were developed to gather data. The questions pertained to the areas of responsibility of media center personnel. A three item scale was utilized. In addition, the respondents were asked to indicate areas of study they considered essential for each of the various professional media personnel specified in the questionnaire.

The findings indicated that the roles of professional media personnel were directly related to instructional decision-making. Competencies and skills sought by employers were generally found to be consistent with the roles identified for the various media personnel. The importance of competencies related to (1) selection, utilization, and evaluation of projected and nonprojected materials for education; and (2) the organization, supervision, and coordination of audio-visual centers were indicated in the results. The findings also indicated that college and university departments of audio-visual education were not preparing media personnel to meet the needs expressed by employers.

The purpose of a study conducted by Smith (1971) was to develop a scale to differentiate traditional and contemporary attitudes toward school library services. An adaptation of the Thurstone's method of equal-appearing intervals was used to produce the scale

items.

The Florida public school librarians made up the sample. The literature yielded a set of 223 attitude statements. The statements were divided into two comparable forms of 20 statements each. These were divided in form A and form B. Items from both forms were randomly combined and administered. Correlations of equivalence of the two forms were obtained for each group.

The results showed that the scale effectively differentiated traditional and contemporary librarians as groups.

Ishikawa (1972) investigated teachers' attitudes toward school library services in relation to (1) the level of the service; (2) the professional characteristics of teachers; and (3) the personal characteristics of teachers. It was hypothesized that teachers receiving good services would have a more positive attitude toward the school library.

Two elementary school libraries were selected; one was designated as good and the other as poor. The teachers and their attitudes toward the library in both schools comprised the sample. The findings indicated significant differences in attitudes toward the school library service in six areas. The results showed a significant difference in the attitudes toward the school library between the two schools. The teachers from the school with good service were more positive.

Perceptions of elementary classroom teachers concerning instructional media and services provided by regional educational media

centers was the purpose of a study done by Morris (1963). A questionnaire constructed with two parts was designed to ascertain perceptions of elementary classroom teachers concerning media needs, characteristics of media utilized, characteristics of materials produced, the most desirable system of media delivery, and in-service media needs.

A group of 1,252 public elementary classroom teachers comprised the sample. The response yielded 1,047 usable returns. The statistical techniques used were: (1) analysis of variance, to examine mean differences in teachers' perceptions by grade assignments, (2) the Newman-Kents test, to determine significant mean differences within each materials characteristic category.

The results suggested significant differences in the perceptions of elementary teachers regarding the characteristics of periodicals and films used in science, social sciences, math and language arts obtained from the regional educational media centers in Iowa. The teachers perceived the most desirable interval and system of delivery of media from the regional educational media centers to be two times per week. The teachers also perceived the need for in-service media programs as moderate for those concerned with equipment maintenance, material selection, administration of a local media program and media center operational procedures. The most effective way of providing in-service media instruction was through graduate college credit workshops.

A study of the ways and means by which media specialists perceive

and discharge their duties was developed by Larsen (1971). The study compared the assignment, function and activities of media specialists in the secondary schools of Utah. The study also assessed how media specialists perceived their roles and determined how administrators perceived their roles.

One basis for the study was the premise that differences in role perception and media practice do exist, and that these differences significantly affect the educational value of the media program. A check list survey instrument was used to measure the perception of individuals as they relate to assignments and the educational environment. A questionnaire was developed and mailed to media specialists in all senior high schools of the State of Utah. It was designed to ascertain: formal preparation, length of time in service, professional activities, specific assignments, and financing of media programs.

The results indicated that: media specialists were more print oriented than nonprint oriented; media specialists did not have sufficient assigned time to carry out the functions of an adequate media program; lack of budgets hampered the media programs; and for many programs financial support has not been made available.

Larsen (1971) indicates that an additional study should be made.

Development of a philosophy of educational media, of the role of the media specialist in the elementary and secondary school and identification of the critical tasks of the educational media

specialist in the elementary and secondary school was the purpose of a study done by Hardman (1971).

The sample consisted of educational media specialists in the public schools of Iowa. The questionnaire was composed of 199 statements of beliefs found in literature. The degree to which the respondents agreed with the statements of belief was measured on a five point Likert scale. The statements of basic beliefs received substantial agreement; of the 199 statements, 167 showed agreement.

A philosophy of educational media was developed from the statements of belief. It indicated that educational media are used in elementary and secondary schools to facilitate the learning process through recording, storing, and transmitting messages. The findings indicated that all media should have equal status and the use of media should be an integral part of the educational experience.

The results also showed the role of the media specialist in eleven major responsibilities: as a manager, responsible for organizing, managing and evaluating the media programs. The media specialist is also a curriculum specialist responsible for maintaining contact with all aspects of the school's instructional program including courses of study, units of study, teaching objectives and curriculum guides. The media specialist is a consultant and also a teacher, responsible for conducting workshops and in-service education activities for teachers, supervisors, and administrators.

The conclusion indicated there was a trend toward a combined print and nonprint media center in elementary and secondary schools

with the media specialist performing tasks related to both print and nonprint media. Additionally, the media specialist's working relationship with administrators, teachers, and students in the teaching-learning process tends to define his role as being primarily one of working first with people and secondly with technical production and operational processes.

Another study related to the role of the media specialist as perceived by public elementary school media specialists and principals in North Carolina was done by Wilson (1972). A survey instrument was developed and a total of 387 media specialists and principals returned the instruments.

The findings showed that a lack of time to perform all the needed services is considered the greatest problem of media specialists. In addition, the greatest need for education as perceived by media specialists is audio-visual education; however, according to the principals surveyed, curriculum is the greatest need. On one hand media specialists are regarded as members of the instructional staff of the school and active participants in the curricular and instructional activities, but principals feel that media specialists should have more years of classroom teaching experience than do media specialists themselves.

In conclusion, Wilson (1972) indicated that principals should obtain a broader concept of the role of the media specialist. Media centers do not have adequate personnel to perform the job adequately. Another concept in this study was that some positions are staffed by

individuals who have education in library science or audio-visual education even though they are attempting to function as media specialists.

Recommendations included a re-evaluation of certification requirements; education for school media specialists should be a specialized program geared specifically to the school program instead of a general library science course. This specialized training should include curriculum development and audio-visual education.

The purpose of a study done by Alabama A & M University Library (1974) was to ascertain perceptions of roles and functions of media specialists, by media specialists. Questionnaires concerning their professional relationships and goals were sent to 456 school media specialists in the southeastern part of the United States. The criteria for selecting school media specialists for this study were: the location of the school districts within the geographical configuration of six states, and the average daily membership of students enrolled in the school districts.

The findings showed that most school media centers are centrally located within school buildings and are accessible and convenient for use by students and teachers. Media professionals spend a significant amount of their time coordinating school fund raising activities, checking daily student attendance, and assisting principals to perform some administrative duties related to school management. The results also indicated that more than half of the teachers seemed apprehensive about using educational hardware. However, the

school media specialists suggested that adequate quantities of audio-visual equipment were not available. The media specialists responding felt that instructing teachers to use media, software, and hardware is necessary in order to increase the effective use of instructional media. Less than half of the respondents expressed that they were directly involved in an effort of in-service training.

Three major areas of concern were pointed out in this study: lack of paraprofessionals or other supportive personnel to assist in maintaining and supporting the center's program and services; lack of adequate physical resources to initiate and provide a comprehensive media center; and lack of fiscal resources to acquire the necessary media to reinforce the school's instructional program.

Time-lapse Photography: An Evaluation Method

Time-lapse photography is a time sampling technique used to form a visual record by compressing longer periods of time into shorter periods. It is a technique for contracting time to record movements and capture images that pass too slowly for the human eye to discern. Time-lapse photographs can provide a point of reference that ordinary observations do not; they provide a precise record. This method of developing precise records has been used by astronomers, and other scientists; however, recently educators have begun to realize its usefulness as an evaluation technique.

Bingham (1967) developed a study utilizing time-lapse photography as an observation technique to record teacher and pupil behavior.

The study was concerned with accomplishing several major tasks: (1) collecting evidence of teacher and pupil activities using an established classroom observation schedule and a time-lapse film record; estimating the precision of the film record made at different time-lapse intervals of 120, 60, 40, 20, 10, and 5 seconds between pictures by comparing them with the observation schedule; testing the agreement between the frequency of occurrence of teacher and pupil activity; estimating the precision of the film record of teacher and pupil activity photographed at different time-lapse intervals and at different grade levels; and testing the agreement between the frequency of occurrence of teacher activity items film and by the live observer.

The five instruments utilized in the study were: (1) the observation schedule and record used to record the frequency of occurrence of teacher and pupil activities; (2) an 8-mm camera to take a picture every 5 seconds and which provided a visual record of the events occurring in the classroom; (3) an 8-mm film projector with attached frame counter to permit an accurate analysis of the film record; (4) a tape recorder which provided a continuous sound record of the entire observation period; and (5) a panning device to enable the camera to photograph events occurring in almost every part of the classroom.

The findings indicated that the precision of the information by film record increased sharply for some activities, modestly for some, and no increase for others as the time lapse interval between

individual film frames diminished. A high level of agreement existed between the information recorded by film and the live observer. An increasing order of precision of the film record was found at each grade level as the time-lapse interval between individual film frames diminished.

The conclusions suggest that teachers, principals, and curriculum teachers may use the time-lapse camera as an inexpensive and precise medium for recording certain kinds of classroom events. The time-lapse film record for preservice education programs is suggested as a means of helping student teachers obtain a precise, inexpensive, and longitudinal record of their work. It could also be useful for in-service programs to assist teachers in efforts towards self-improvement techniques. The author suggests that time-lapse photography appears to be a valuable technique for research projects which seek to gather an accurate record of classroom events which do not depend primarily upon sound.

The effects of three modes of feedback based on 35-mm time-lapse photographic protocols on increasing intern teachers' perceptions of attending behavior cues was a study developed by Fanslow (1967). The sample consisted of 82 interns from the Stanford teacher education program. The interns were divided in three groups according to sex, subject field and school.

The study utilized two different kinds of protocols, each based on a photographic record. An electrically operated, sound-proof 35-mm camera was placed in the front corner of each intern teacher's

classroom and a positive filmstrip was made of each classroom observed. Two analyses were made: a self-rating by the intern of the class session, a rating of the intern by independent raters. Mean scores were then computed.

The findings indicated that when teacher interns were given the opportunity to view filmstrip observations of the classes they taught, they were able to modify classroom attending behavior.

Ward (1968) conducted a study utilizing the variable-interval sequenced-action camera to record teacher activities. The study hypothesized that the sequenced-action film was of instructional value comparable to a sound-on-film motion picture.

The results indicated that the 16-mm variable-interval sequenced-action camera can be utilized for inexpensive photographic recording of effective teacher instruction and use of instructional materials for teacher education and research purposes. Other advantages are that the camera photographs single frames at preselected time intervals. The cost of the raw film is low and the camera can operate unattended for over one hour.

Time-lapse films taken at 2.5 second intervals were made in twelve fourth grade classrooms during arithmetic and reading instruction, in a study developed by Nowak (1970). The teachers in the sample were randomly selected from the 65 fourth grade teachers. Teacher-pupil contacts were classified into three categories representing: face to face interaction between the teacher and the pupil,

the teacher and a small group and the teacher and the whole class. Other areas were classroom teacher activities when the attention of the pupils was not solicited and teacher travel or movements of the teacher from one classroom section to another.

Eight hours of observations and interviews were conducted with the teachers to discover which insights might accrue as a result of their viewing the films and receiving information from the analysis of the film record. Two types of patterns of teacher-pupil interaction and teacher supervisory activity were identified: extended interaction (a sequence of one type of contact or incidence of supervisory behavior which occurred for two minutes duration or multiples) and alternating interaction (periods of time occurring in sequence for two minutes duration in which the teacher changed from one type of contact or activity).

The results revealed that the teachers spent about two-thirds of their time in the front of the classroom during both reading and arithmetic. The back of the room was used 14% more of the time in reading than in arithmetic. The teachers expressed a desire to use the time-lapse camera technique in the future to evaluate their teaching behavior.

A study aimed at determining whether the use of 35-mm time-lapse photography as an observation and training procedure in the supervision of teachers would increase the effectiveness of supervision was done by Houde (1971). Effectiveness was measured by (1) accuracy of teacher's perceptions of student behavior, (2) the

levels of student behavior in the classes of teachers supervised with this technique.

The sample was comprised of five groups of junior high school teachers, randomly assigned to three treatment and two control groups. One class from each of the teachers was photographed three times at about four week intervals with an intervalometer equipped camera. The photographic records, including 24 pictures taken at about 112 second intervals, covered all but a few seconds of the class periods. Students were trained and employed to rate student behavior as reflected in the photographic records. The rates evaluated each student observed on each slide and completed a classroom observation record. Total and mean scores were computed for each student and for each class. At the end of each filming session, teachers were required to complete an evaluation form on which they recorded their judgments of the overall level of each student behavior. Mean ratings were then computed and recorded for the classes.

The results illustrated that time-lapse photography used in the observation and supervision of teachers will result in measured increases in teacher sensitivity and response to students' nonverbal cues and in the increased level of classroom behavior. All the analyses support the conclusions that generating photographic records of classes will result in changes in student and teacher behavior providing a teacher with a photo record or with a verbal description of the record will produce additional changes in student and teacher behavior and providing a teacher with the record and with

related discussion by a supervisor will tend to produce the greatest gains in teacher and student behavior.

Walker and Adelman (1971) used an observational recording system to record and replay classroom events. The observational technique utilized was 35-mm still photos made from 16-mm film. Simultaneous with the film recording a real time sound recording was made. The teacher wore a lavaliere microphone connected to a Lustraphone ratio transmitter; the receiver was connected to a tape recorder. This left the teacher free to move around the room.

The results indicated that the use of film is a valuable research tool for classroom observers who want to follow classroom events over fairly long periods of time with some access to record detail level of behavior. The findings indicated that a multifaceted interpretation of individual classroom events is needed in both research and teacher education. Any single incident has several meanings according to the interpretive framework of the observer. The author suggests that research into educational events should aim to describe these different levels of meaning and explore their functions in the ongoing educational setting.

Summary

The review of literature included five major topics: (1) the purpose and function of the instructional media center, (2) the need for evaluation of instructional media centers, (3) description of instructional media staff, (4) role perception evaluation studies,

and (5) time-lapse evaluation studies.

Literature related to the purpose and function of the instructional media center indicated that it is a learning center where a range of print and audio-visual media, necessary equipment and services from the media staff are accessible to students and teachers.

The need for documenting educational events in the instructional media center is of paramount importance if the center is to relate to the goals and objectives of the institution. Documentation is an indispensable tool for the media center staff; it is not a series of checking or counting of equipment, but should be a well-developed continuous record of significant activities which are an integral part of the centers program.

Educational media staff contributes to the achievement of the institutional goals. The staff and the media program serve as a support system for the school. The staff should have competencies in media technology, as well as in print materials. Media training should emphasize the importance of specialized training for the media specialist, generalist or other staff persons. Knowledge of human behavior, learning theories, research methods and instructional communication and technology are important elements. It was recommended that schools should seek out coordinators with basic background preparation in media technology. Studies indicated a lack of paraprofessionals or other supportive personnel to assist in maintaining the center's services.

Role perception evaluation studies revealed both media staff

perceptions, of their roles, and perceptions of administrators and teachers concerning the media staff. Several findings showed consensus of the media staff's role by the teachers, administrators, and media staff. The role of the media staff and media program is one of serving as a print and nonprint support system for the school.

Several studies utilized time-lapse photography as an evaluation method to provide a more precise point of reference which differs from the ordinary observation record. Findings showed that precision of the information by a film record increased sharply for some activities. Conclusions also suggest that teachers and administrators could use the time-lapse technique as an inexpensive and more precise medium for recording certain kinds of educational activities.

On the basis of this review of the literature, the comparison of a subjective paper and pencil evaluation method with the use of the time-lapse technique seems appropriate.

METHOD OF PROCEDURE

The major purpose of this study was to determine whether the use of a multi-facet approach will increase the accuracy of describing instructional media center programs (IMC). This approach utilized a pencil and paper record established by groups within a school and a record established by 16-mm time-lapse photography.

Objectives

The objectives of this study were to:

1. Document the IMC activities by two methods to determine if the perceived roles of the IMC and staff are the same as observed practice roles through
   a. recording perceptions of an IMC program utilizing an adaptation of Fulton's (1970) Self-Evaluation Checklist, and
   b. recording activities within a school IMC utilizing 16-mm time-lapse photography.
2. Compare Checklist responses and 16-mm time-lapse photography observations to determine relationships.

Assumptions

The following assumptions were made in this study:

1. Fulton's (1970) Evaluation Checklist: An Instrument for Self-Evaluating an Educational Media Program in College and University can be adapted to a secondary school IMC program.

2. The adapted evaluation Checklist can be used by groups within a school to describe a junior high IMC program.
3. It is possible to record and interpret individual 16-mm frames resulting from time-lapse photography techniques to determine activities within an IMC.
4. A pencil and paper record, established by groups within a school, and a visual record, established by 16-mm time-lapse photography, can be used to document selected aspects of a junior high school instructional media center.

Sample

The scope of this study was limited to instructional media centers in two Iowa public junior high schools.

The sample used in the study was four groups within each school: administrators, IMC staff, teachers, and students.

Since some or all of the school administrators and IMC staff were aware that they were participating in the study, an effort was made to control for a Hawthorne effect by collecting the time-lapse data first. Each school's IMC staff, faculty, and school administrators were included in the sample.

The students in the sample were selected in the following way: (1) two junior high schools were selected; (2) seventy-six homerooms were in the population studied with an average enrollment of twenty; (3) three grade levels, 7th, 8th, and 9th, were included in the sample. Students were divided into groups by sex and each group was

alphabetized. Fifty students per grade level were sampled. The use of junior high school students as the student portion of the sample was an attempt to measure an initial point in the students' exposure to the instructional media center and staff at the secondary school level.

Student checklists were administered during the homeroom period to the first student, last, fourth from the top, and the fourth from the bottom of each group. The time period for data collection was seven days within a two-week period.

The distribution of the sample for each school totaled 186, resulting in a total sample size of 372 subjects, as follows:

	Each school	All schools
1. School administrators		
a. Principal	1	2
b. Vice principal	1	2
2. Classroom teachers	29	58
3. IMC staff	5	10
4. Students		
a. Females	75	150
b. Males	75	150
	186	372

Collection of the Data

Two methods were used to document IMC activities, time-lapse photography and a Checklist. Collection of the visual data required the use of ten rolls (100 feet each) of 16-mm black and white negative film.

Development of 16-mm time-lapse filming procedures

Site selection criteria were based on a minimum enrollment of 300 to 800 students. In each of the two junior high school's IMC, a 40-hour time-lapse film record was made of print activities. The primary point of focus, in both situations, was the IMC staff's activity patterns within the IMC. A second point of focus, in both situations, was the IMC staff's patterns of interactions with the IMC clientele. The third point of focus was the activity patterns of the IMC clientele. The time-lapse filming was between the hours of 8:00 a.m. to 4:00 p.m. Actual screen time recorded for this period of 40 hours was 13 minutes and 50 seconds. Time-lapse filming of print media activities was accomplished within five days. The collected data were equalized for the differences in filming rates (7.5 and 8), and student enrollment and the mean, the standard deviation, and a t-test were computed.

The 16-mm time-lapse filming procedures were selected as the most appropriate way to collect visual data. Availability of equipment and rental charges as well as factors such as purchase and processing charges for film, portability and adaptability of equipment, and the ability of equipment to operate unattended for extended time periods supported the decision to use time-lapse procedures.

Equipment for analyzing super 8-mm and 35-mm film was not available. Video tape recording is continuous. Thus, these three recording formats were not used.

Bingham (1967) and Nowak (1970) time-interval studies were used

as reference points to establish camera operational procedures, placement and field of view, point of focus, exposure, filming rate, length of filming, and angle of view to record the activity patterns of groups within the print section of the IMC. The field test was conducted at Ames Senior High School IMC within the circulation library. The filming period was 8:20 a.m. to 2:46 p.m. Three different filming rates were tested. A film analyzer from the Agricultural Engineering Department at Iowa State University was used to analyze the film.

The rationale for selecting a filming rate of one frame every 7.5 seconds was the result of the pre-testing time-intervals used in similar studies. Pre-testing revealed that time intervals between one frame every 3.5 and 8 seconds clearly distinguish individual activity patterns of media staff, students, and teachers using two work stations. Time intervals shorter than 3.5 seconds did not provide additional data. Intervals longer than 8 seconds did not clearly distinguish individual group activity patterns. Additionally, this 7.5 second rate allowed a time-lapse record of a 40 hour period of activities using 500 feet of film.

The activity patterns were recorded on 38,837 16-mm frames. These frames represent 13 minutes and 50 seconds of screen time when projected at 24 frames per second.

The camera was a 16-mm spool-type Kocak Cine Special with a 15-mm Ektar lens. The film was Eastman Kodak Double X, type 7222. The timer-control units were from the Film Production Unit of Iowa

State University.

The format for analysis of the 16-mm time-lapse film required a film analyzer to inspect the film frame by frame. The film analyzer used was a 16-mm Motion Analyzer Model 900 which had a frame counter, a single frame control, and a manual stop. Its features also included automatic speeds of 1-8 frames per second and a cine speed of 16 and 24 frames per second. Additionally, the speed control operated in the forward or reverse direction.

Another format for analyzing the time-lapse film was pre-tested. This method was to pre-mark randomly selected frames using a grease pencil and a four gang synchronizer. The pre-marked frames were individually viewed using a system of gridlines superimposed over a Moviola editing screen.

This method was abandoned because it proved to be more time consuming than using the Motion Analyzer, and it did not improve upon the observations of the activities. Also, it was important to view the total film footage in order to obtain the desired information.

In summary, the following steps were established for recording data through time-lapse photography:

1. Pre-test camera installation procedures, angle of view, and focusing.
2. Pre-test various exposure time intervals using two 16-mm electrically activated time-lapse cameras and other necessary equipment.

3. Pre-test film analysis equipment and procedures.
   a. Moviola with gridlines superimposed over editing screen (this step was abandoned).
   b. 16-mm Motion Analyzer Model 900.
4. Time-lapse filming of two junior high IMC's covering a five-day period.
   a. Filming period was from 8:00 a.m. to 4:00 p.m.
   b. Utilization of two work stations by three groups was filmed.
   c. 500 feet of Kodak Double X negative film was used per IMC.
   d. Camera exposure time intervals used were one frame every 7.5 and 8 seconds.
   e. Total number of observations equal 38,837.
5. Time-lapse film analysis:
   a. Total film footage was inspected frame by frame, and the activities of three groups using two work stations were recorded.
   b. The three groups' use of these stations was recorded as frequency counts.
   c. Using a variety of frame ratios, sample data were collected from the film footage of the "average days."
   d. Sample data were coded by school, by person, by work station, and by day and frequencies were computed.
   e. Individual cells within frequency printout tables were

compared with inspection record for total film footage.

f. Frame sampling ratios were abandoned when frequency printout tables did not approximate inspection record of total film footage.

g. A 50 frame per day sample was collected from the total film footage.

Development of Checklists

The second procedure used in this study was an adaptation of Fulton's Checklist to determine the perceived roles of the center and the center's staff.

Fulton's Evaluation Checklist consists of six major areas: (1) educational media services, (2) curriculum and instruction, (3) media center, (4) physical facilities, (5) budget and finance, and (6) media staff. The Checklist was structured so that each question provided four sub-statements for selection. One adaptation for this study was to reduce the number of sub-statements from four to two. A second adaptation was to reduce a Likert-scale from 12 options to five. Staff and student Checklists were designed using adapted areas and the five point scale.

The Checklists were based on the assumption that there are common, fundamental elements of an educational media program which facilitate the improvement of instruction.

The Checklists examined attitudes of groups within a school toward Fulton's major areas: (1) the organization of IMC services; (2) the financing of IMC programs; (3) the availability of IMC staff

for students. The Checklist also asked the respondent to choose from several statements the one that best described some aspect of the IMC program and staff. In order to utilize Fulton's Checklist, it was necessary to make several modifications: (1) adjustment of the reading level to conform to the reading level and comprehension ability of 7 through 9 grade students (Flesch, 1949); (2) reduction in the number of words in some questions; (3) use of Likert's 1-5 scale for question response; and (4) addition of one major area with four subareas to investigate the assistance given to groups within the IMC by IMC staff.

The Checklists were administered to a test sample within the Des Moines, Iowa, Public School System. The test sample consisted of four school administrators, four IMC staff, eight teachers, and twenty students. The test sample reported that questions were readable and the content of the questions would be useful in describing a junior high IMC program.

Additionally, the adapted Checklists were examined item by item by a panel of experts who were composed of media specialists. The panel suggested that these questions were useful because they provided a comprehensive overview of the elements within a media center's program. The panel agreed that the adapted Checklist assessed the same information as Fulton's (1970) Checklist.

In summary, the following steps were taken in adapting and administering the Checklist to the sample:

1. Adapted Fulton's (1970) Checklist to describe elements of

junior high IMC program.

a. Staff Checklist contained 41 questions and was administered to administrator, media staff, and teachers.

b. Student Checklist contained 14 questions and was administered to 7th, 8th, and 9th grade junior high students.

c. The Checklists were pre-tested for readability and to determine whether it would be useful in describing a junior high IMC program.

2. Administered and collected Checklist:

a. A training session was conducted for one person in each school to assist in administering and collecting the checklist.

b. Checklists were administered to four groups--administrators, IMC staff, students, and teachers.

3. Analysis of checklist data:

a. An item analysis Chi-square median test was computed for IMC staff, students, and teachers.

b. Data from students were also analyzed by sex and by grade.

c. Frequencies were hand tabulated for four administrators.

d. Percents were hand tabulated for all groups.

Analysis of the Data

One purpose of the study was to develop a process to describe instructional media center activities. The raw data from the Checklist and 16-mm time-lapse film were coded. The data were keypunched and analyzed by the Computation Center at Iowa State University.

Checklist data

The primary method of analyzing the Checklist data was to compute an item analysis Chi-square median test as well as to report frequency and percent of response for each Checklist item. Additionally, data from the students were analyzed by sex and by grade. Checklists were administered to administrators, IMC staff, teachers, and students within two State of Iowa Public junior high schools.

Film data

The activities in two junior high IMC's were filmed. The film recorded the activities of: IMC staff, teachers, and students at two work stations in each IMC. The filming consisted of 100 feet per day for eight hours for five days at two work stations in each IMC. Data were based upon 1000 feet of 38,837 individual frames of black and white negative film and a positive print. The 16-mm footage was viewed, and data were collected and analyzed as follows:

1. The activities of three groups were recorded on negative film and a positive print was made. The total film footage from each of two junior high school's IMC was analyzed.
2. An average of the daily activities was computed for each IMC.

3. Utilizing the computed "average day" for each IMC, every tenth frame was analyzed, and the activities of three groups at two work stations were recorded.
4. Fifty frames per day were analyzed for five days in each IMC.

Based upon the results of the 16-mm time-lapse film observations of instructional media center activities, the mean, the standard deviation, and a t-test were computed.

FINDINGS AND DISCUSSION

Findings are reported from two Checklists and from the 16-mm time-lapse filming.[a] To systematically report the data and discuss its meaning and interrelationships, each of the Checklists, and then the film, were treated separately. The Checklists were then compared to the time-lapse film in those areas where data were available and relative to the same events or phenomena.

Staff Checklist

The Staff Checklist (Appendix A) was given to two administrators, twenty-nine teachers, and five media personnel in each of the two schools. In every case each question was properly filled out, so no spoiled, incomplete, or unusable questions resulted. Response to each of the 41 items was on a 1 to 5 Likert-scale. Frequency responses were tabulated for all of the staff questioned and are reported in Tables 1 to 7, along with the percentage of the total that each response represents.

To test for significant differences between schools, as shown by data from the Staff Checklist, a Chi-square median test (Table 7) was conducted on all 41 items (N = 72). The formula for the

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[a]One Checklist, designed for the staff, yielded data presented in Tables 1 through 7 and in Figure 1. A second Checklist, designed for students, provided data presented in Tables 8 through 9 and in Figures 2 through 5. Time-lapse filming results are in Tables 10 through 14. Additional film results are presented in Figures 7 through 10. The Checklists are in Appendix A and B, respectively.

Chi-square median test, as recommended by Mood, and cited in Siegel (1956), is:

$$p(A,b) = \frac{\binom{A+C}{A}\binom{B+D}{B}}{\binom{n_1+n_2}{A+B}}$$

where A is the number of cases in group I which fall above the combined median, B is the number of cases in group II which fall above the combined median, C is the number of cases in group I which fall below the combined median, and D is the number of cases in group II which fall below the combined median.

Results of the Chi-square test (Table 7) indicate significant differences on items 7, 11, and 22. These will be discussed in particular in the following sections.

Not only did all other items not show significant differences, but there was fairly close agreement on many of them. The six areas highlighted in the Staff Checklist are discussed below with special attention to significant Chi-square results where appropriate.

I. Instructional educational media services

This section of seventeen questions dealt with commitment to the media program, commitment to media as a part of instruction, provision of facilities, financing and staffing.

In general there was close agreement among administrators, teachers, and media staff about the extent of support for educational media services as reported in Table 1, questions 1-17. Figure 1 illustrates the general pattern of responses.

Table 1. Staff Checklist: Instructional educational media services; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. The resource center offers adequate services.														
Strongly agree	5	6.9	1	1.4	2	2.8	2	2.8	14	19.4	11	15.3	35	48.6
Agree			4	5.6					13	18.1	17	23.6	34	47.2
Uncertain									1	1.4	1	1.4	2	2.8
Disagree													0	0.0
Strongly disagree									1	1.4			1	1.4
2. Adequate clerical and technical staff persons are available to assist teachers and students.														
Strongly agree			2	2.8	2	2.8	1	1.4	7	9.7	11	15.3	23	32.0
Agree	5	6.9	3	4.2			1	1.4	21	29.2	15	20.8	45	62.5
Uncertain											2	2.8	2	2.8
Disagree											1	1.4	1	1.4
Strongly disagree									1	1.4			1	1.4
3. The resource center services are well coordinated.														
Strongly agree	2	2.8			2	2.8	2	2.8	10	13.9	6	8.3	22	30.6
Agree	3	4.2	5	6.9					15	20.8	19	26.4	42	58.3
Uncertain									3	4.2	2	2.8	5	6.9
Disagree											2	2.8	2	2.8
Strongly disagree									1	1.4			1	1.4

Table 1. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
4. The resource center program provides quantity and a variety of educational media for instructional purposes.														
Strongly agree	5	6.9	3	4.2	2	2.8	2	2.8	13	18.1	8	11.1	33	45.8
Agree			1	1.4					11	15.3	21	29.2	33	45.8
Uncertain									2	2.8			2	2.8
Disagree									2	2.8			3	4.2
Strongly disagree			1	1.4					1	1.4			1	1.4
5. The resource center staff encourages the faculty to use media as integral parts of instruction.														
Strongly agree	4	5.6	2	2.8	1	1.4	2	2.8	15	20.8	13	18.1	37	51.2
Agree	1	1.4	3	4.2	1	1.4			12	16.7	15	20.8	32	44.4
Uncertain									2	2.8			2	2.8
Disagree											1	1.4	1	1.4
Strongly disagree													0	0.0
6. The resource center staff tries to make outside resources (city library, university library, industrial materials, etc.) available to teachers and students.														
Strongly agree	1	1.4	2	2.8	1	1.4	1	1.4	5	6.9	3	4.2	13	18.1
Agree	1	1.4	2	2.8			1	1.4	11	15.3	8	11.1	23	32.0
Uncertain	3	4.2	1	1.4	1	1.4			12	16.7	14	19.4	31	43.0
Disagree									1	1.4	2	2.8	3	4.2
Strongly disagree											2	2.8	2	2.8

Table 1. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
7. The resource center staff regularly weeds out old print and nonprint materials.														
Strongly agree	1	1.4	2	2.8	1	1.4			6	8.3	3	4.2	13	18.1
Agree	2	2.8	3	4.2			2	2.8	5	6.9	23	32.0	35	48.6
Uncertain	2	2.8			1	1.4			15	20.8	2	2.8	20	27.8
Disagree									3	4.2	1	1.4	4	5.6
Strongly disagree													0	0.0
8. All school owned media are controlled by the resource center.														
Strongly agree	3	4.2	2	2.8	1	1.4	1	1.4	6	8.3	8	11.1	21	29.2
Agree	2	2.8	3	4.2	1	1.4	1	1.4	10	13.9	8	11.1	25	34.7
Uncertain									7	9.7	7	9.7	14	19.4
Disagree									4	5.6	6	8.3	10	13.9
Strongly disagree									2	2.8			2	2.8
9. All school owned media are catalogued in the resource center's card catalogue.														
Strongly agree	2	2.8	2	2.8	1	1.4			2	2.8	8	11.1	15	20.8
Agree	1	1.4	3	4.2			2	2.8	8	11.1	1	1.4	21	29.2
Uncertain					1	1.4			10	13.9	10	13.9	21	29.2
Disagree									9	12.5	4	5.6	13	18.1
Strongly disagree													0	0.0

Table 1. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
10. All classrooms are equipped for the greatest possible use of educational media.														
Strongly agree	2	2.8	1	1.4					3	4.2	1	1.4	7	9.7
Agree	3	4.2	3	4.2	2	2.8	1	1.4	13	18.1	9	12.5	31	43.0
Uncertain			1	1.4			1	1.4	1	1.4	5	6.9	8	11.1
Disagree									11	15.3	12	16.7	23	32.0
Strongly disagree									1	1.4	2	2.8	3	4.2
11. All old classrooms are being modified as fast as possible to provide for effective use of media.														
Strongly agree	2	2.8							5	6.9	1	1.4	8	11.1
Agree	1	1.4	2	2.8	2	2.8	2	2.8	13	18.1	2	2.8	22	30.6
Uncertain	2	2.8	3	4.2					9	12.5	15	20.8	24	33.3
Disagree									2	2.8	8	11.1	10	13.9
Strongly disagree											3	4.2	3	4.2
12. The educational media program is adequately financed.														
Strongly agree			3	4.2	1	1.4	1	1.4	1	1.4	8	11.1	14	19.4
Agree	3	4.2	2	2.8	1	1.4			9	12.5	9	12.5	24	33.3
Uncertain	2	2.8					1	1.4	13	18.1	6	8.3	20	27.8
Disagree									5	6.9	5	6.9	10	13.9
Strongly disagree									1	1.4	1	1.4	2	2.8

Table 1. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
13. The resource center receives too much financing.														
Strongly agree									1	1.4	1	1.4	2	2.8
Agree									1	1.4	1	1.4	2	2.8
Uncertain									12	16.7	12	16.7	24	33.3
Disagree	3	4.2	3	4.2	2	2.8	2	2.8	7	9.7	11	15.3	28	38.9
Strongly disagree	2	2.8	2	2.8					8	11.1	4	5.6	16	22.2
14. The resource center's budget reflects long-range educational media plans.														
Strongly agree			1	1.4					1	1.4			2	2.8
Agree	1	1.4	4	5.6	2	2.8	1	1.4	9	12.5	7	9.7	24	33.3
Uncertain							1	1.4	16	22.2	20	27.8	41	59.9
Disagree									2	2.8			2	2.8
Strongly disagree									1	1.4	2	2.8	3	4.2
15. The resource center's budget includes provision for special media for unusual curriculum problems.														
Strongly agree					1	1.4					1	1.4	2	2.8
Agree	3	4.2	4	5.6	1	1.4	1	1.4	10	13.9	9	12.5	28	38.9
Uncertain	2	2.8	1	1.4			1	1.4	17	23.6	16	22.2	37	51.2
Disagree									2	2.8	1	1.4	3	4.2
Strongly disagree											2	2.8	2	2.8

Table 1. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
16. The resource center's services are provided by qualified professional media specialists.														
Strongly agree	1	1.4	2	2.8	2	2.8	2	2.8	10	13.9	6	8.3	23	32.0
Agree	4	5.6	3	4.2					18	25.0	19	26.4	44	61.1
Uncertain									1	1.4	4	5.6	5	6.9
Disagree													0	0.0
Strongly disagree													0	0.0
17. An adequate resource center clerical and technical staff is provided to permit the teaching staff to use their time in the performance of professional tasks.														
Strongly agree	3	4.2	2	2.8	1	1.4			8	11.1	6	8.3	20	27.8
Agree	2	2.8	2	2.8	1	1.4	2	2.8	17	23.6	12	16.7	36	50.0
Uncertain			1	1.4					4	5.6	5	6.9	10	13.9
Disagree											5	6.9	5	6.9
Strongly disagree											1	1.4	1	1.4

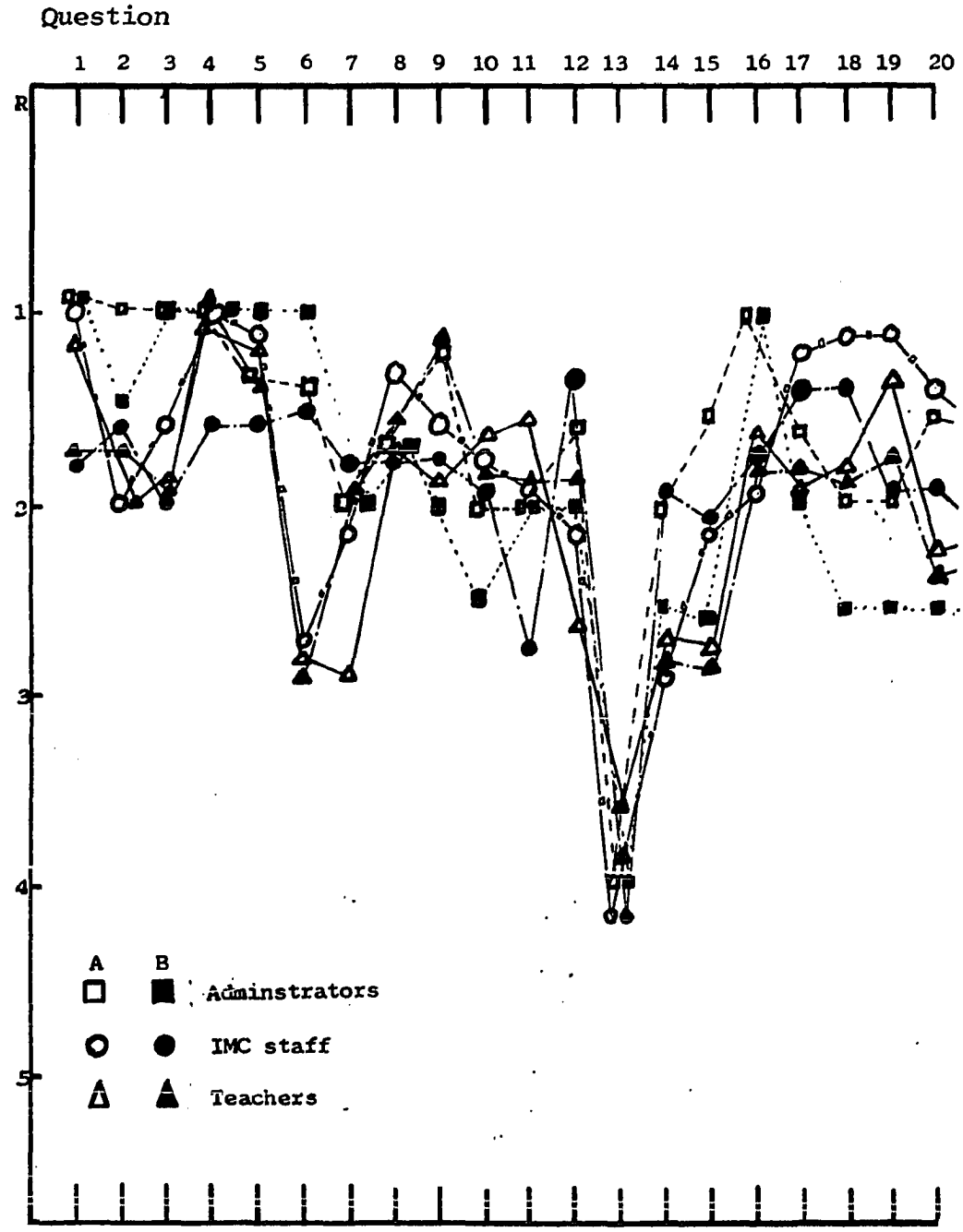
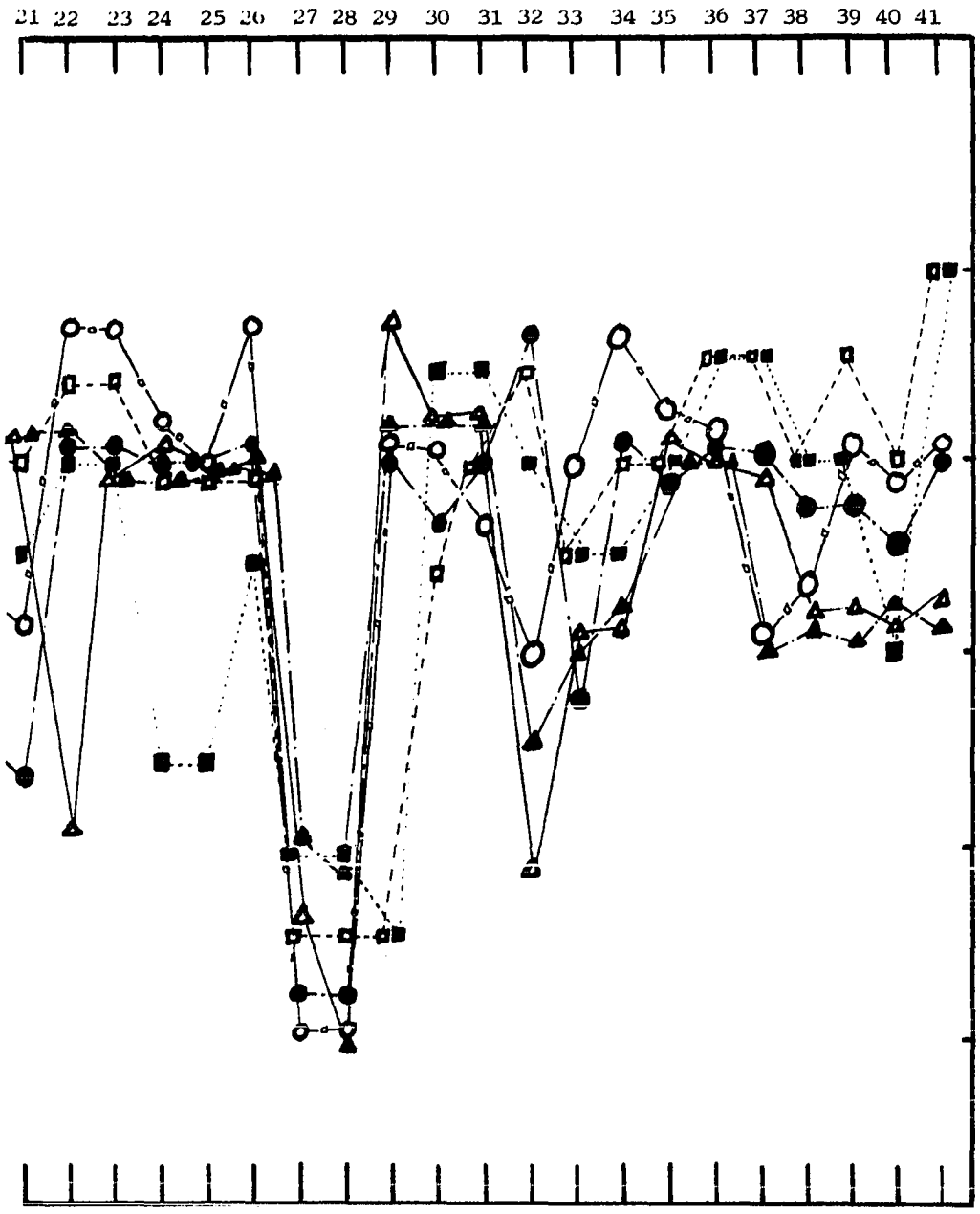


Figure 1. Results of Checklist for administrators, IMC staff, and teachers. R = Response, 1, highly agree; 2, agree; 3, uncertain; 4, disagree; 5, highly disagree


21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

There was high positive agreement, with 80-90% of the responses falling into the agree/strongly agree categories, on these aspects:

* The resource center offers adequate services.
* Adequate support staff is available.
* Services are well coordinated.
* Variety and quantity of media are provided.
* Resource Center staff encourage faculty use of media for instruction.

A slightly broader range with above 80% of the responses from uncertain to strongly agree occurred on these items:

* Resource Center staff makes outside resources available.
* The Center budget reflects long-range planning.
* The budget provides for special media related to unusual curriculum problems.

An even broader pattern of responses, with 80-90% ranging from disagree to strongly agree, was noted on these issues:

* All media are controlled by the resource center.
* All media are listed in the card catalog.
* All classrooms are equipped for the greatest use of media.
* The program is adequately financed.

Nearly 95% were uncertain, disagreed, or strongly disagreed that the Center received too much financing. Significant differences as determined by the Chi-square median test between the two schools on question 7, related to weeding out old print and nonprint material were noted. Staff in one school felt appropriate weeding was

conducted, but staff in the other school felt it was not.

A significant difference in responses was also found for question 11 which related to the rate of speed that old classrooms were being modified to increase the effective use of media. Most teachers in school A responded agree, but most teachers in school B responded uncertain.

II. Educational media services in curriculum and instruction

This section of nine questions dealt with consultative services, media services to the educational program, faculty and student use of media, and IMC staff involvement in planning.

Generally there was close agreement among the groups responding to these questions about the extent of services for curriculum and instructional purposes, as reported in Table 2, questions 18-26.

There was high positive agreement with 80-90% of the responses falling into the agree/strongly agree categories, on these aspects:

* The IMC staff and faculty work together to meet school media needs.
* Teachers participate in media selections for the IMC.
* Teachers obtain media without any difficulty.
* Teachers and students are oriented to IMC use.

A slightly broader range with more than 80% of responses, from uncertain to strongly agree occurred on these questions:

* Most faculty use appropriate media for instruction.
* Students use appropriate media in self-study.

Table 2. Staff Checklist: Curriculum and instructional media services; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
18. The resource center staff works as a part of the regular faculty in analyzing teaching needs and in designing, selecting, and using educational media to meet these needs.														
Strongly agree	4	5.6	2	2.8					8	11.1	3	4.2	17	23.6
Agree	1	1.4	2	2.8	2	2.8	1	1.4	18	25.0	21	29.2	45	62.5
Uncertain			1	1.4			1	1.4			2	2.8	4	5.6
Disagree									1	1.4	3	4.2	4	5.6
Strongly disagree									2	2.8			2	2.8
19. Teachers in this school participate in media selection for the resource center.														
Strongly agree	4	5.6	1	1.4					13	18.1	8	11.1	26	36.1
Agree	1	1.4	4	5.6	2	2.8	1	1.4	11	15.3	20	27.8	39	54.2
Uncertain							1	1.4	1	1.4	1	1.4	3	4.2
Disagree									3	4.2			3	4.2
Strongly disagree									1	1.4			1	1.4
20. Teachers generally experience no difficulty in obtaining the materials they request.														
Strongly agree	3	4.2	1	1.4	1	1.4			4	5.6	7	9.7	16	22.2
Agree	2	2.8	4	5.6	1	1.4	1	1.4	16	22.2	18	25.0	42	58.3
Uncertain							1	1.4	2	2.8	3	4.2	6	8.3
Disagree									3	4.2	1	1.4	4	5.6
Strongly disagree									4	5.6			4	5.6

Table 2. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
21. The resource center provides adequate in-service education activities relating to the utilization of educational media.														
Strongly agree			1	1.4					2	2.8	2	2.8	5	6.9
Agree	2	2.8	2	2.8	2	2.8	1	1.4	15	20.8	15	20.8	37	51.2
Uncertain	2	2.8	1	1.4			1	1.4	5	6.9	7	9.7	16	22.2
Disagree	1	1.4	1	1.4					6	8.3	3	4.2	11	15.3
Strongly disagree									1	1.4	2	2.8	3	4.2
22. The hours of operation of the resource center, and its seating capacity, permit full use of the facility at any reasonable hour.														
Strongly agree	3	4.2	2	2.8	1	1.4			4	5.6	2	2.8	12	16.7
Agree	2	2.8	2	2.8	1	1.4	2	2.8	6	8.3	19	26.4	32	44.4
Uncertain			1	1.4					6	8.3	4	5.6	11	15.3
Disagree									11	15.3	3	4.2	14	19.4
Strongly disagree									2	2.8	1	1.4	3	4.2
23. Efforts are made to thoroughly orient teachers and students to the varied resources of the IMC.														
Strongly agree	3	4.2	1	1.4	1	1.4			6	8.3	4	5.6	15	20.8
Agree	2	2.8	3	4.2	1	1.4	2	2.8	15	20.8	18	25.0	41	59.9
Uncertain			1	1.4					2	2.8	2	2.8	5	6.9
Disagree									3	4.2	5	6.9	8	11.1
Strongly disagree									3	4.2			3	4.2

Table 2. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
24. Most faculty members use appropriate educational media from the resource center for instructional purposes.														
Strongly agree	2	2.8							4	5.6			6	8.3
Agree	3	4.2	5	6.9	2	2.8			13	18.1	19	26.4	42	58.3
Uncertain							1	1.4	8	11.1	10	13.9	19	26.4
Disagree							1	1.4	1	1.4			2	2.8
Strongly disagree							1	1.4	3	4.2			3	4.2
25. Students also use appropriate media for individual and group study as well as for class presentations.														
Strongly agree									3	4.2			3	4.2
Agree	5	6.9	5	6.9	2	2.8			15	22.2	19	26.4	47	65.3
Uncertain							1	1.4	6	8.3	6	8.3	13	18.1
Disagree							1	1.4	1	1.4	4	5.6	6	8.3
Strongly disagree									3	4.2			3	4.2
26. The professional education resource staff is involved with the faculty in planning for the use of educational media.														
Strongly agree	3	4.2	1	1.4					8	11.1	1	1.4	13	18.1
Agree	2	2.8	4	5.6	2	2.8	1	1.4	15	20.8	19	26.4	43	59.7
Uncertain							1	1.4	5	6.9	6	8.3	12	16.7
Disagree											3	4.2	3	4.2
Strongly disagree									1	1.4			1	1.4

* The IMC staff is involved with faculty in planning for the use of media.

On two of the items the responses were widespread and above 80% were concentrated in three categories, agree, uncertain, and disagree. Question 21 investigated the extent that in-service was provided relating to the use of media. Most of the responses were in three categories, which included agree, uncertain, and disagree.

One question (Table 2, number 22) gave rise to a significant difference (Table 7).

When asked about adequacy of hours of operation and seating capacity, a significant difference in responses was found between teachers in schools A and B. The responses for most teachers in school A was in the uncertain/disagree categories. Responses for school B teachers were in the agree/strongly agree categories.

III. The educational media center

This section of nine questions dealt with the location of the IMC, dissemination of media-related information, availability of media from the IMC, storage and retrieval of media, and maintenance and production of media.

In general, there was close agreement between groups responding to these questions, with 80-90% of the responses concentrated in the agree, uncertain, and disagree categories as reported in Table 3, questions 27-35. However, no significant differences in response were recorded for any of these questions.

Table 3. Staff Checklist: The educational media center; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
27. The location of the resource center restricts its use to most faculty members.														
Strongly agree									1	1.4			1	1.4
Agree									2	2.8	3	4.2	5	6.9
Uncertain			1	1.4					5	6.9	4	5.6	10	13.9
Disagree	1	1.4	1	1.4	1	1.4	2	2.8	10	13.9	19	26.4	34	47.2
Strongly disagree	4	5.6	3	4.2	1	1.4			11	15.3	3	4.2	22	30.6
28. The location of the resource center restricts its use to most students.														
Strongly agree									1	1.4			1	1.4
Agree									3	4.2	2	2.8	5	6.9
Uncertain					1	1.4			5	6.9	2	2.8	7	9.7
Disagree	1	1.4	1	1.4	1	1.4	2	2.8	7	9.7	22	30.6	34	47.2
Strongly disagree	4	5.6	3	4.2	1	1.4			13	18.1	3	4.2	24	33.3
29. Information concerning educational media is frequently disseminated to the faculty, students, and staff as a matter of policy.														
Strongly agree	1	1.4			1	1.4	1	1.4	11	15.3	2	2.8	16	22.2
Agree	4	5.6	5	6.9	1	1.4	1	1.4	11	15.3	19	26.4	41	59.9
Uncertain									5	6.9	5	6.9	10	13.9
Disagree									2	2.8	1	1.4	3	4.2
Strongly disagree											2	2.8	2	2.8

Table 3. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
30. The information disseminated to the faculty is useful information.														
Strongly agree	1	1.4	1	1.4			1	1.4	7	9.7	4	5.6	14	19.4
Agree	4	5.6	2	2.8	1	1.4	1	1.4	16	22.2	19	26.4	43	59.7
Uncertain			2	2.8	1	1.4			5	6.9	5	6.9	13	18.1
Disagree									1	1.4			1	1.4
Strongly disagree											1	1.4	1	1.4
31. There is sufficient quantity of educational media to insure their delivery to the point of use at any time during the week in which they are requested.														
Strongly agree							1	1.4	11	15.3	2	2.8	4	5.6
Agree	3	4.2	5	6.9	2	2.8	1	1.4	13	18.1	17	23.6	41	59.9
Uncertain	1	1.4							6	8.3	2	2.8	9	12.5
Disagree	1	1.4							7	9.7	8	11.1	16	22.2
Strongly disagree									2	2.8			2	2.8
32. The resource center has enough storage shelves and drawers for currently owned instructional materials.														
Strongly agree									1	1.4			1	1.4
Agree	2	2.8	3	4.2	1	1.4			8	11.1	9	12.5	24	33.3
Uncertain	1	1.4	1	1.4	1	1.4	2	2.8	10	13.9	15	20.8	30	41.7
Disagree	2	2.8	1	1.4					8	11.1	5	6.9	16	22.2
Strongly disagree									2	2.8			2	2.8

Table 3. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
33. All educational media are inspected after each usage.														
Strongly agree													0	0.0
Agree	5	6.9			1	1.4	1	1.4	4	5.6	3	4.2	14	19.4
Uncertain			3	4.2	1	1.4	1	1.4	20	2.8	11	29.2	46	63.9
Disagree			2	2.8					5	6.9	3	4.2	10	13.9
Strongly disagree											2	2.8	2	2.8
34. All educational media are cleaned and repaired on a regular basis or when inspection indicates the need.														
Strongly agree	3	4.2	1	1.4					2	2.8	1	1.4	7	9.7
Agree	2	2.8	4	5.6	2	2.8	1	1.4	11	15.3	11	15.3	31	43.0
Uncertain							1	1.4	16	22.2	14	19.4	31	43.0
Disagree											3	4.2	3	4.2
Strongly disagree													0	0.0
35. The resource staff produces a variety of educational media not otherwise available and meet most production demands for such media as slides, graphics, and recordings.														
Strongly agree	2	2.8							3	4.2	1	1.4	6	8.3
Agree	3	4.2	4	5.6	2	2.8	2	2.8	17	23.6	21	29.2	49	68.1
Uncertain			1	1.4					8	11.1	4	5.6	13	18.1
Disagree									1	1.4	1	1.4	2	2.8
Strongly disagree											2	2.8	2	2.8

There was high positive agreement with above 80% of the responses falling into the agree/strongly agree categories for question 29, media information is frequently disseminated.

There was high agreement, though in the negative direction with 80-90% of the responses falling into the disagree/strongly disagree categories, on these aspects:

* The IMC location restricts its use to the faculty.

* The IMC location restricts its use to students.

A slightly broader range of responses comprising 80-90% from uncertain to strongly agree occurred on these questions:

* Useful IMC information is disseminated to the faculty.

* Media is serviced on a regular basis.

* Media produced in the IMC.

Above 80% of the responses were in the agree, uncertain, and disagree categories on these aspects:

* The quantity of media available for use.

* The status of storage space in the IMC for media.

* Inspection of media after each use.

IV. Physical facilities for educational media

This section of one question dealt with physical facilities and the extent to which the IMC hardware was compatible with classroom facilities (Table 4, question 36). In general, there was close agreement between groups responding to this question, but the pattern of response covered all categories. Respectively, the

Table 4. Staff Checklist: Physical facilities for educational media; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
36. Audio-visual equipment received from the resource center is compatible with classroom facilities.														
Strongly agree	2	2.8	1	1.4	1	1.4	1	1.4	3	4.2	2	2.8	10	13.9
Agree	3	4.2	4	5.6	1	1.4	1	1.4	20	27.8	22	30.6	51	70.8
Uncertain									3	4.2	5	6.9	8	11.1
Disagree									1	1.4			1	1.4
Strongly disagree									2	2.8			2	2.8

responses were agree/strongly agree, uncertain, and disagree/strongly disagree.

V. Budget and finance of the educational media program

This section of four questions dealt with the reporting of financial needs to administrators, determining if the IMC budget covers both short and long-range goals, the extent to which the budget reflects school needs, and the extent to which the development of the IMC budget is a collective effort (Table 5, questions 37-40).

In general, there was close agreement between groups responding. A range of responses, with 80-90% in the uncertain to strongly agree range, occurred on these questions:

* Financial needs of the IMC are reported to the administrators.
* The IMC budget reflects short and long-range goals.
* The IMC budget reflects school needs.
* The IMC budget reflects a collective effort.

VI. IMC staff

This section of one question dealt with the IMC staff. Question 41 investigated the extent to which the IMC program was directed by a qualified media specialist and was assisted with sufficient clerical and technical assistance (Table 6).

There was a high positive agreement between groups with 80-90% of the responses falling into the agree/strongly agree categories.

Table 5. Staff Checklist: Budget and finance of the educational media program; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
37. The financial needs of the educational media program are regularly reported to the chief administrative officer in charge of the instruction.														
Strongly agree			1	1.4	1	1.4	1	1.4			1	1.4	4	5.6
Agree	1	1.4	3	4.2	1	1.4	1	1.4	15	20.8	6	8.3	27	37.5
Uncertain	4	5.6	1	1.4					14	19.4	21	29.2	40	55.6
Disagree											1	1.4	1	1.4
Strongly disagree													0	0.0
38. The budget for the resource center is based almost entirely on immediate needs though some consideration is given to long-range goals.														
Strongly agree											1	1.4	1	1.4
Agree	2	2.8	3	4.2	2	2.8	2	2.8	8	11.1	4	5.6	21	29.2
Uncertain	3	4.2	2	2.8					19	26.4	19	26.4	43	59.7
Disagree									2	2.8	5	6.9	7	9.7
Strongly disagree													0	0.0
39. The budget of the resource center program reflects the media needs of the entire institution.														
Strongly agree	2	2.8			1	1.4			3	4.2	2	2.8	8	11.1
Agree	1	1.4	3	4.2	1	1.4	2	2.8	9	12.5	5	6.9	21	29.2
Uncertain	2	2.8	2	2.8					16	22.2	20	27.8	40	55.6
Disagree									1	1.4			1	1.4
Strongly disagree											2	2.8	2	2.8

Table 5. (continued)

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
40. The budget for the resource center is developed by the professional media staff in consultation with the faculty and school administrators.														
Strongly agree					1	1.4					2	2.8	3	4.2
Agree	4	5.6	2	2.8					6	8.3	9	12.5	21	29.2
Uncertain	1	1.4	2	2.8	1	1.4	2	2.8	19	26.4	14	19.4	39	54.2
Disagree			1	1.4					4	5.6	2	2.8	7	9.7
Strongly disagree											2	2.8	2	2.8

Table 6. Staff Checklist: Educational media staff; N = 72

	School A Media staff		School B Media staff		School A Admin.		School B Admin.		School A Teachers		School B Teachers		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
41. The resource center program is directed by well-qualified educational media specialists who are provided with sufficient professional, clerical, and technical staff to provide adequate educational media services.														
Strongly agree	1	1.4			2	2.8	2	2.8	12	16.7	5	5.6	22	30.6
Agree	4	5.6	5	6.9					14	19.4	19	26.4	42	58.3
Uncertain									3	4.2	4	5.6	7	9.7
Disagree											1	1.4	1	1.4
Strongly disagree													0	0.0

Table 7. Median frequency matrix and Chi-square value on items 1 through 41; N = 72

Item no.	School A median frequency	School B median frequency	χ^2	df	Median occurs at row
1	15.73 13.27	13.27 15.73	0.4196	1	2
2	13.42 15.58	15.58 13.42	0.3238	1	2
3	15.74 13.26	13.26 15.74	0.4210	1	2
4	15.75 13.25	13.25 15.75	0.4310	1	2
5	15.44 13.56	13.56 15.44	0.2461	1	2
6	16.92 12.08	12.08 16.92	1.6197	1	2
7	9.57 19.43	19.43 9.57	6.7009**	1	2
8	14.33 14.67	14.67 14.33	0.0077	1	2
9	12.00 17.00	17.00 12.00	1.7241	1	5
10	16.50 12.50	12.50 16.50	1.1034	1	3

[a]Table values for χ^2 are 6.635 at 1 degree of freedom.

**Significant at .01 level.

Table 7. (Continued)

Item no.	School A median frequency	School B median frequency	χ^2	df	Median occurs at row
11	21.00 8.00	8.00 21.00	11.6552**	1	3
12	11.37 17.63	17.63 11.37	2.7053	1	3
13	14.39 14.61	14.61 14.39	0.0034	1	4
14	15.33 13.67	13.67 15.33	0.1916	1	3
15	14.64 14.36	14.36 14.64	0.0051	1	3
16	16.32 12.68	12.68 16.32	0.9181	1	2
17	16.79 12.21	12.21 16.79	1.4506	1	2
18	16.31 12.69	12.69 16.31	0.9014	1	2
19	15.84 13.16	13.16 15.84	0.4944	1	2
20	12.47 16.53	16.53 12.47	1.1361	1	2
21	14.50 14.50	14.50 14.50	0.0000	1	2
22	9.52 19.48	19.48 9.52	6.8415**	1	2

Table 7. (Continued)

Item no.	School A median frequency	School B median frequency	χ^2	df	Median occurs at row
23	14.64 14.36	14.36 14.64	0.0051	1	2
24	14.16 14.86	14.86 14.16	0.0326	1	2
25	14.89 14.11	14.11 14.89	0.0410	1	2
26	16.82 12.18	12.18 16.82	1.4893	1	2
27	12.83 16.17	16.17 12.83	0.7716	1	4
28	12.86 16.14	16.14 12.86	0.7401	1	4
29	16.87 12.13	12.13 16.87	1.5451	1	2
30	15.23 13.77	13.77 15.23	0.1464	1	2
31	12.27 16.73	16.73 12.27	1.3759	1	2
32	13.40 15.60	15.60 13.40	0.3338	1	3
33	14.73 14.27	14.27 14.73	0.0148	1	3
34	15.13 13.87	13.87 15.13	0.1107	1	3

Table 7. (Continued)

Item no.	School A median frequency	School B median frequency	χ^2	df	Median occurs at row
35	14.18 14.82	14.82 14.18	0.0275	1	2
36	14.43 14.57	14.57 14.43	0.0014	1	2
37	17.80 11.20	11.20 17.80	3.0041	1	3
38	16.00 13.00	13.00 16.00	0.6207	1	3
39	16.44 12.50	12.56 16.44	1.0430	1	3
40	12.91 16.09	16.09 12.91	0.6982	1	3
41	17.09 11.91	11.91 17.09	1.8518	1	2

Student Checklist

The Student Checklist (Appendix B) was given to 150 students in each of the two schools. In every case each question was properly filled out, so no spoiled, incomplete, or unusable questions resulted. Responses to each of the fourteen items was on a 1 to 5 Likert-scale.

Frequency responses were tabulated for all of the students questioned and are reported in Table 8 with the percentage of the total that each response represents. Additionally, student responses were tabulated by school, by grade, and by sex (Figures 2 through 5).

To identify significant differences between schools, as shown by data from the student Checklist, a Chi-median test was conducted on all 14 items on all Checklists returned (N = 300). Results of the test (Table 9) indicated significant differences on items 7, 8, 9, 11, 13, and 14. These will be discussed in particular in following sections.

Educational Media Services Provided to Students

Results from the Student Checklist were divided into three sections. The first two parts discuss five questions each and the third part discusses four questions.

I. This section of five questions dealt with students being allowed to spend free time in the IMC, to use the IMC without feeling crowded, and to obtain help, materials, and instruction in the use

of resources.

In general there was close agreement among students in responding to these questions, as reported in Table 8 and Figure 2, questions 1-5.

There was high positive agreement with above 80% of the responses falling into the often/always categories for question 3, relating to obtaining help in the center.

A slightly broader range with more than 80% of responses from occasionally to always was noted on this issue:

* Students are able to get into the resource center and use it without feeling crowded.

On two of the items the responses were more widespread with 80% of the responses in seldom, occasionally, often, and always categories.

* For question 1, students are allowed to go to the resource center whenever they have free time; the responses were seldom, occasionally, and often. Figures 2 and 5 indicate that school, grade, and sex differences related to how students responded to this question.
* For question 5, students get instructions in how to find materials in the resource center, the responses were occasionally, often, and always. Figure 2 indicates that there were no school, grade, or sex differences related to students' responses.

Table 8. Student Checklist: Educational media services; N = 300

Sex / Class	School A											
	Male						Female					
	7		8		9		7		8		9	
	N	%	N	%	N	%	N	%	N	%	N	%
Question 1. Are you allowed to go to the resource center whenever you have free time?												
Never	1	.3	3	1.0	4	1.3	1	.3	1	.3	1	.3
Seldom	10	3.3	8	2.6	4	1.3	7	2.3	8	2.6	1	.3
Occasionally	5	1.6	7	2.3	3	1.0	10	3.3	12	4.0	8	2.6
Often	5	1.6	7	2.3	3	1.0	9	3.0	13	4.3	8	2.6
Always	1	.3	4	1.3	3	1.0	1	3.0			2	.6
Question 2. Are you able to get into the resource center and use it without feeling crowded?												
Never	1	.3	1	.3	3	1.0					5	1.6
Seldom	2	.6	5	1.6	4	1.3	4	1.3	2	.6	17	5.6
Occasionally	6	2.0	7	2.3	3	1.0	3	1.0	15	5.0	14	4.6
Often	9	3.0	11	3.6	5	1.6	17	5.6	14	4.6	5	1.6
Always	4	1.3	5	1.6	2	.6	4	1.3	3	1.0	16	5.3
Question 3. Can you get help in the center if you need it?												
Never	2	.6	1	.3	2	.6					5	1.6
Seldom												
Occasionally	2	.6	3	1.0	3	1.0	7	2.3	10	3.3	5	1.6
Often	9	3.0	13	4.3	6	2.0	12	4.0	11	3.6	5	1.6
Always	9	3.0	12	4.0	6	2.0	8	2.6	13	4.3	10	3.3
Question 4. Does the resource center have the materials you need?												
Never			1	.3	3	1.0					4	1.3
Seldom	2	.6					2	.6	2	.6	1	.3
Occasionally	8	2.6	13	4.3	9	3.0	6	2.0	8	2.6	5	1.6
Often	9	3.0	12	4.0	5	1.6	18	6.0	22	7.3	10	3.3
Always	3	1.0	2	.6			2	.6	2	.6	4	1.3

School B													
Male						Female						Total	
7		8		9		7		8		9			
N	%	N	%	N	%	N	%	N	%	N	%	N	%
		1	.3							1	.3	13	4.3
5	1.6	2	.6	3	1.0	12	4.0	4	1.3	8	2.6	72	24.0
12	4.0	17	5.6	5	1.6	8	2.6	8	2.6	7	2.3	102	34.0
3	1.0	13	4.3	7	2.3	5	1.6	12	4.0	4	1.3	84	29.6
4	1.3	4	1.3	1	.3			3	1.0	1	.3	24	8.0
1	.3					2	.6					8	2.6
1	.3	2	.6	1	.3			1	.3			22	7.3
4	1.3	8	2.6	2	.6	3	1.0	5	1.6	9	3.0	79	26.3
12	4.0	22	7.3	13	4.3	9	3.0	18	6.0	10	3.3	145	48.3
6	2.0	5	1.6	1	.3	11	3.6	3	1.0	2	.6	46	15.3
												5	1.6
												0	0.0
2	.6	9	3.0	3	1.0	1	.3	5	1.6	3	1.0	53	17.6
7	2.3	18	6.0	7	2.3	9	3.0	7	2.3	13	4.3	118	39.3
15	5.0	10	3.3	7	2.3	15	5.0	15	5.0	5	1.6	125	41.6
1	.3			1	.3							6	2.0
		2	.6	1	.3			1	.3	1	.3	12	4.0
3	1.0	8	2.6	3	1.0	5	1.6	5	1.6	5	1.6	78	26.0
16	5.3	23	7.6	11	3.6	15	5.0	19	6.3	15	5.0	175	
4	1.3	4	1.3	1	.3	5	1.6	2	.6			29	9.6

Table 8. (continued)

Sex / Class	School A											
	Male						Female					
	7		8		9		7		8		9	
	N	%	N	%	N	%	N	%	N	%	N	%
Question 5. Do you get instruction in how to find materials in the resource center?												
Never	2	.6	1	.3	2	.6	1	.3	1	.3	1	.3
Seldom	4	1.3	4	1.3	3	1.0	4	1.3	4	1.3	19	6.3
Occasionally	3	1.0	9	3.0	6	2.0	4	1.3	9	3.0	5	1.6
Often	10	3.3	12	4.0	5	1.6	12	4.0	10	3.3	6	2.0
Always	3	1.0	3	1.0	1	.3	7	2.3	10	3.3	7	2.3
Question 6. How often have you been asked to help choose materials for the resource center?												
Never	16	5.6	20	6.6	12	4.0	21	7.0	24	8.0	14	4.6
Seldom	3	1.0	4	1.3	4	1.3	3	1.0	8	2.6	3	1.0
Occasionally	3	1.0	3	1.0			4	1.3	2	.6	1	.3
Often			1	.3	1	.3					2	.6
Always											2	.6
Question 7. Does the school allow you to take home materials other than books from the resource center?												
Never	14	4.6	13	4.3	7	2.3	9	3.0	10	3.3	5	1.6
Seldom	4	1.3	6	1.0	3	1.0	13	4.3	14	4.6	7	2.3
Occasionally	1	.3	5	1.6	4	1.3	1	.3	4	1.3	2	.6
Often	2	.6	4	1.3	3	1.0	3	1.0	3	1.0	5	1.6
Always	1	.3	1	.3			2	.6	2	.6	1	.3
Question 8. Does the school allow you to take home viewing and listening equipment from the resource center?												
Never	17	5.6	23	7.6	15	5.0	21	7.0	29	9.6	14	4.6
Seldom	3	1.0	3	1.0			5	1.6	4	1.3	4	1.3
Occasionally	2	.6	2	.6	1	.3					5	1.6
Often							1	.3			1	.3
Always			1	.3	1	.3	1	.3	1	.3	2	.6

School B													
Male						Female						Total	
7		8		9		7		8		9			
N	%	N	%	N	%	N	%	N	%	N	%	N	%
		1	.3							2	.6	11	3.6
2	.6	1	.3	1	.3			2	.6	2	.6	27	9.0
5	1.6	8	2.6	6	2.0	1	.3	5	1.6	4	1.3	65	21.6
6	2.0	20	6.6	7	2.3	13	4.3	7	2.3	4	1.3	112	37.3
11	3.6	7	2.3	3	1.0	11	3.6	13	4.3	9	3.0	85	28.3
21	7.0	26	8.6	13	4.3	22	7.3	18	6.0	19	6.3	226	75.3
2	.6	5	1.6	1	.3	3	1.0	5	1.6	2	.6	43	14.3
		2	.6	2	.6			2	.6			19	6.3
1	.3	2	.6	1	.3			1	.3			7	2.3
		2	.6					1	.3			5	1.6
2	.6							2	.6	1	.3	63	21.0
4	1.3	2	.6	2	.6	1	.3			1	.3	57	19.0
5	1.6	15	5.0	4	1.3	5	1.6	6	2.0	7	2.3	59	19.6
3	1.0	11	3.6	7	2.3	7	2.3	12	4.0	5	1.6	65	21.6
10	3.3	9	3.0	4	1.3	12	4.0	7	2.3	7	2.3	56	17.6
5	1.6	5	1.6	4	1.3	3	1.0	5	1.6	6	2.0	147	49.0
7	2.3	6	2.0	8	2.6	4	1.3	3	1.0	3	1.0	50	16.6
9	3.0	12	4.0	4	1.3	13	4.3	6	2.0	4	1.3	53	17.6
2	.6	7	2.3	1	.3	2	.6	4	1.3	4	1.3	21	7.0
		7	2.3			3	1.0	9	3.0	4	1.3	29	9.6

Table 8. (continued)

Sex / Class	School A											
	Male						Female					
	7		8		9		7		8		9	
	N	%	N	%	N	%	N	%	N	%	N	%
Question 9. Are you allowed to create audio-visual media such as slides?												
Never	4	1.3	2	.6	1	.3	6	2.0	6	2.0	1	.3
Seldom	3	1.0	6	2.0	5	1.6	4	1.3	5	1.6	1	.3
Occasionally	7	2.3	9	3.0	4	1.3	11	3.6	6	2.0	2	.6
Often	7	2.3	10	3.3	5	1.6	5	1.6	11	5.0	10	1.6
Always			2	.6	2	.6	2	.6	6	2.0	6	2.0
Question 10. Does using audio-visual media make your classes more interesting?												
Never	2	.6	1	.3	2	.6	3	1.0	1	.3	9	3.0
Seldom	4	1.3	5	1.6	3	1.0	1	.3	2	.6	2	.6
Occasionally	4	1.3	4	1.3	2	.6	7	2.3	10	3.3	2	.6
Often	7	2.3	10	3.3	4	1.3	10	3.3	10	3.3	6	2.0
Always	5	1.6	9	3.0	6	2.0	7	2.3	11	3.6	10	3.3
Question 11. Do you know when new books or new materials are available in the resource center?												
Never	9	3.0	8	2.6	6	2.0	7	2.3	5	1.6	4	1.3
Seldom	6	2.0	8	2.6	3	1.0	16	5.3	14	4.6	2	.6
Occasionally	3	1.0	7	2.3	6	2.0	2	.6	11	3.6	11	3.6
Often	2	.6	2	.6			3	1.0	4	1.3	3	1.0
Always	2	.6	4	1.3	2	.6					8	2.6
Question 12. Do you like to go to the resource center?												
Never	1	.3	2	.6	4	1.3	2	.6	3	1.0	2	.6
Seldom	4	1.3	4	1.3	3	1.0	3	1.0	6	2.0	4	1.3
Occasionally	7	2.3	11	3.6	4	1.3	12	4.0	11	3.6	5	1.6
Often	2	.6	5	1.6	4	1.3	9	3.0	12	4.0	6	2.0
Always	8	2.6	7	2.3	2	.6	2	.6	2	.6	3	1.0

School B												
Male						Female						Total
7		8		9		7		8		9		
N	%	N	%	N	%	N	%	N	%	N	%	N %
1	.3	1	.3	2	.6			3	1.0	2	.6	29 9.6
4	1.3	2	.6	3	1.0	1	.3	3	1.0	2	.6	39 13.0
8	2.6	7	2.3	3	1.0	5	1.6	1	.3	2	.6	65 21.6
6	2.0	15	5.0	5	1.6	8	2.6	6	2.0			88 29.3
5	1.6	12	4.0	4	1.5	11	3.6	14	4.6	15	5.0	79 16.3
				1	.3			1	.3	3	1.0	14 4.6
3	1.0					1	.3					21 7.0
5	1.6	10	3.3	4	1.3	10	3.3	9	3.0	1	.3	68 11.6
7	2.3	11	3.6	9	3.0	9	3.0	12	4.0	12	4.0	106 35.3
9	3.0	15	5.0	3	1.0	5	1.6	5	1.6	5	.6	90 30.0
5	1.6	1	.3	3	1.0	1	.3	3	1.0	2	.6	54 18.0
3	1.0	7	2.3	5	1.6	4	1.3	9	3.0	5	1.6	82 27.3
8	2.6	15	5.0	6	2.0	10	3.3	9	3.0	8	2.6	96 32.0
4	1.3	10	3.3	3	1.0	5	1.6	4	1.3	4	1.3	42 14.0
4	1.3	4	1.3			5	1.6	3	1.0	2	.6	26 8.6
1	.3					2	.6			1	.3	18 6.0
4	1.3	2	.6	4	1.3	3	1.0	4	1.3	2	.6	43 14.3
6	2.0	12	4.0	5	1.6	9	3.0	11	3.6	6	2.0	99 33.0
7	2.3	15	5.0	4	1.3	6	1.0	10	3.3	7	2.3	87 29.0
6	2.0	8	2.6	4	1.3	5	1.6	1	.3	5	1.6	53 17.6

Table 8. (continued)

Sex / Class	School A											
	Male						Female					
	7		8		9		7		8		9	
	N	%	N	%	N	%	N	%	N	%	N	%
Question 13. How often do you use media other than books from your resource center?												
Never	3	1.0	2	.6	3	1.0	4	1.3	2	.6	14	4.6
Seldom	9	3.0	11	3.6	6	2.0	14	4.6	16	5.3	7	2.3
Occasionally	7	2.3	9	3.0	4	1.3	5	1.6	14	4.6	8	2.6
Often	2	.6	6	2.0	4	1.3	5	1.6	2	.6	4	1.3
Always	1	.3	1	.3							2	.6
Question 14. Are you able to get into the resource center and use it without feeling crowded?												
Never	7	2.3	7	2.3	5	1.6	5	1.6	7	2.3	2	.6
Seldom	7	2.3	5	1.6	2	.6	6	2.0	3	1.0	2	.6
Occasionally	7	2.3	12	4.0	6	2.0	14	2.0	17	5.6	12	4.0
Often			1	.3	1	.3	1	.3	2	.6	1	.3
Always	1	.3	4	1.3	3	1.0	2	.6	5	1.6	3	1.0

School B												
Male						Female						
7		8		9		7		8		9		Total
N	%	N	%	N	%	N	%	N	%	N	%	N %
1	.3	1	.3			4	1.3					20 6.6
15	5.0	9	3.0	5	1.6	14	4.6	11	3.6	9	3.0	126 42.0
3	1.0	15	5.0	7	2.3	6	2.0	8	2.6	3	1.0	89 29.6
3	1.0	9	3.0	5	1.6			7	2.3	8	2.6	55 18.3
2	.6	3	1.0			1	.3	1	.3	1	.3	10 3.3
8	1.6	6	2.0	5	1.6	8	2.6	6	2.0	6	2.0	72 24.0
6	2.0	10	3.3	2	.6	12	3.0	5	1.6	4	1.3	64 21.3
9	3.0	13	4.3	3	1.0	4	1.3	13	4.3	2	.6	112 37.3
		5	1.6	2	.6					5	1.6	18 6.0
1	.3	2	.6	5	1.6	1	.3	3	1.0	3	1.0	33 11.0

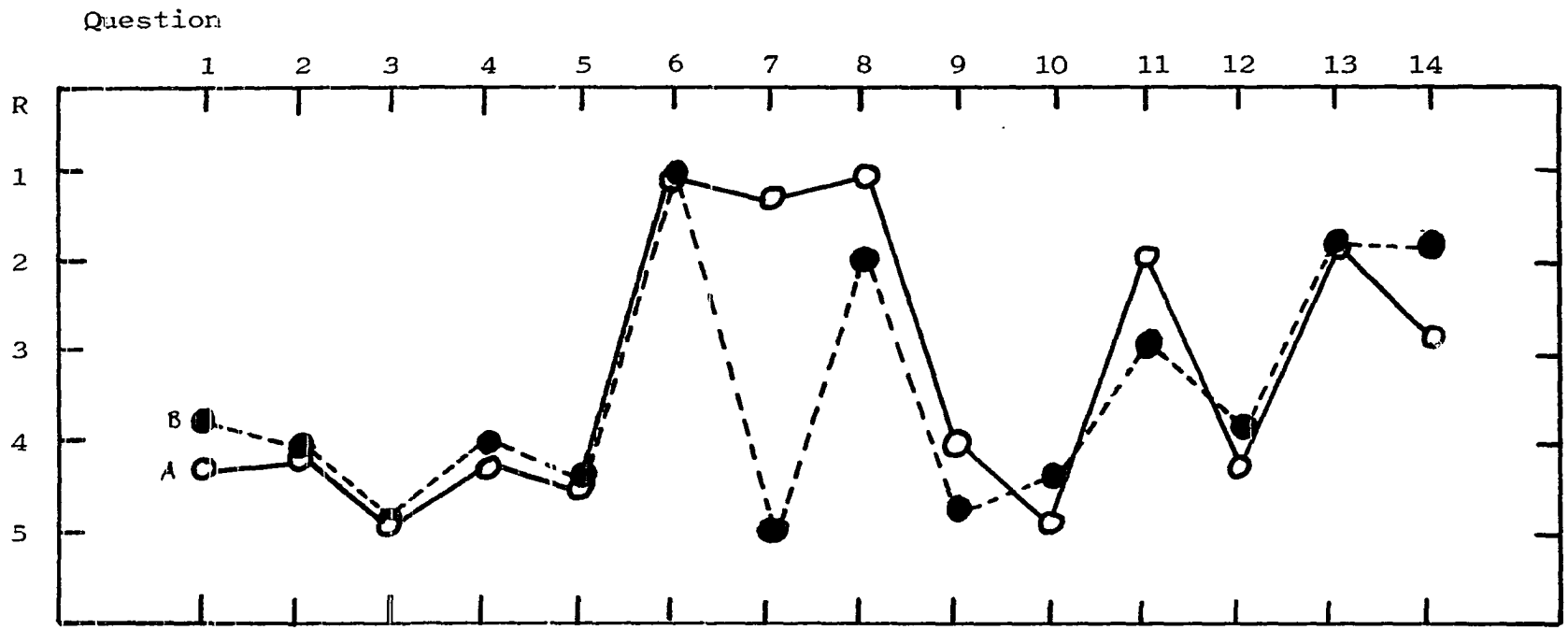


Figure 2. Results of student checklist for schools (A) and (B); n = 300. R = Response, 1, never; 2, seldom; 3, occasionally; 4, often; 5, always

II. This section of five questions dealt with whether students selected materials for the IMC, whether the IMC allowed students to take home nonprint materials, whether students were allowed to create audio and visual materials, and whether A-V materials made classes more interesting.

In general there was agreement among students in responding to these questions (Table 8 and Figures 3 to 5).

There was agreement but in the negative direction with more than 80% of the responses falling into the seldom/never categories for question 6: Students have been asked to help choose materials for the resource center. Additionally, Figures 2 to 5 indicate no school, grade, or sex differences related to students' responses.

Significant differences were determined by the Chi-square median test (Table 9) between the two schools on the following questions:

* Question 7 related to whether the school allowed students to take home materials other than books from the resource center. A significant difference in responses was found between students in schools A and B. Figures 2 to 5 graphically illustrate that most students in school A responded never, and many students in school B responded always.
* Question 8 related to whether the school allowed students to take home viewing and listening equipment from the resource center. A significant difference in responses was found between students in schools A and B. Figure 3 shows

Figure 3. Results of student Checklist for 7th grade males and females for schools (A) and (B)

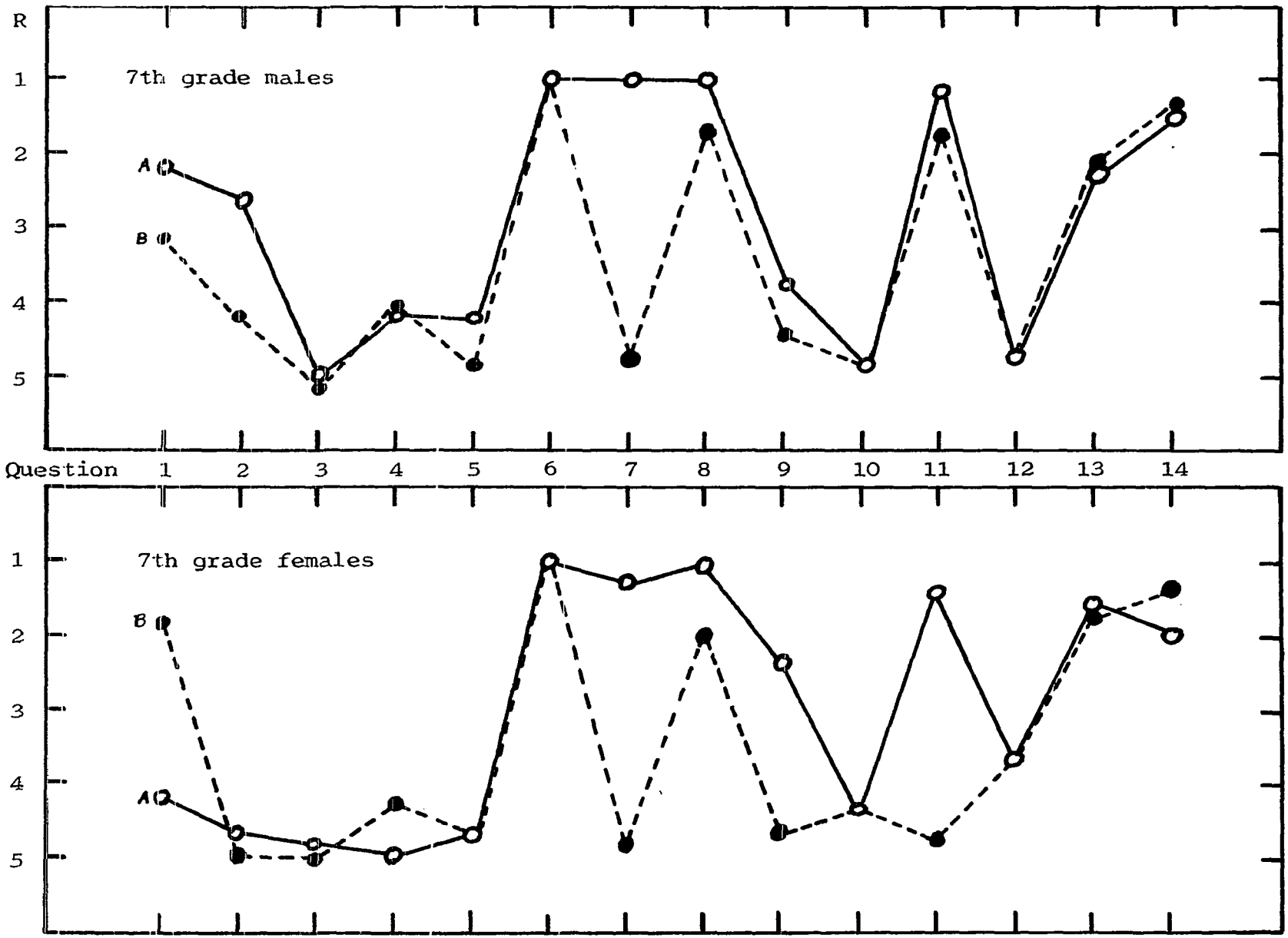

R
1
2
3
4
5
7th grade males
A
B
Question 1 2 3 4 5 6 7 8 9 10 11 12 13 14
1
2
3
4
5
7th grade females
B
A

Figure 4. Results of student Checklist for 8th grade males and females for schools (A) and (B). R = Response, 1, never; 2, seldom; 3, occasionally; 4, often; 5, always

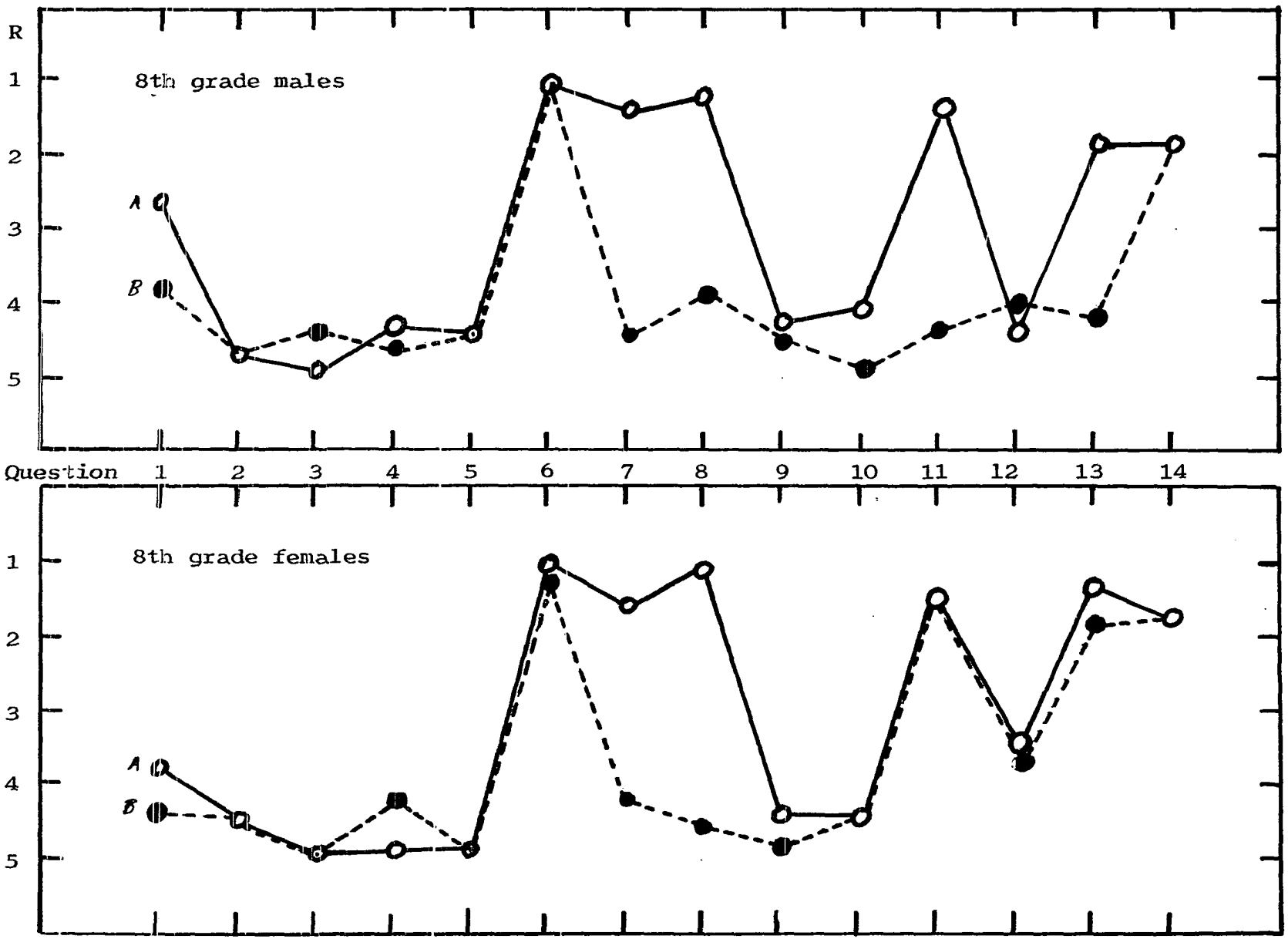

R
1
2
3
4
5
8th grade males
A
B
Question 1 2 3 4 5 6 7 8 9 10 11 12 13 14
8th grade females
A
B

Figure 5. Results of student Checklist for 9th grade males and females for schools (A) and (B). R = Response, 1, never; 2, seldom; 3, occasionally; 4, often; 5, always

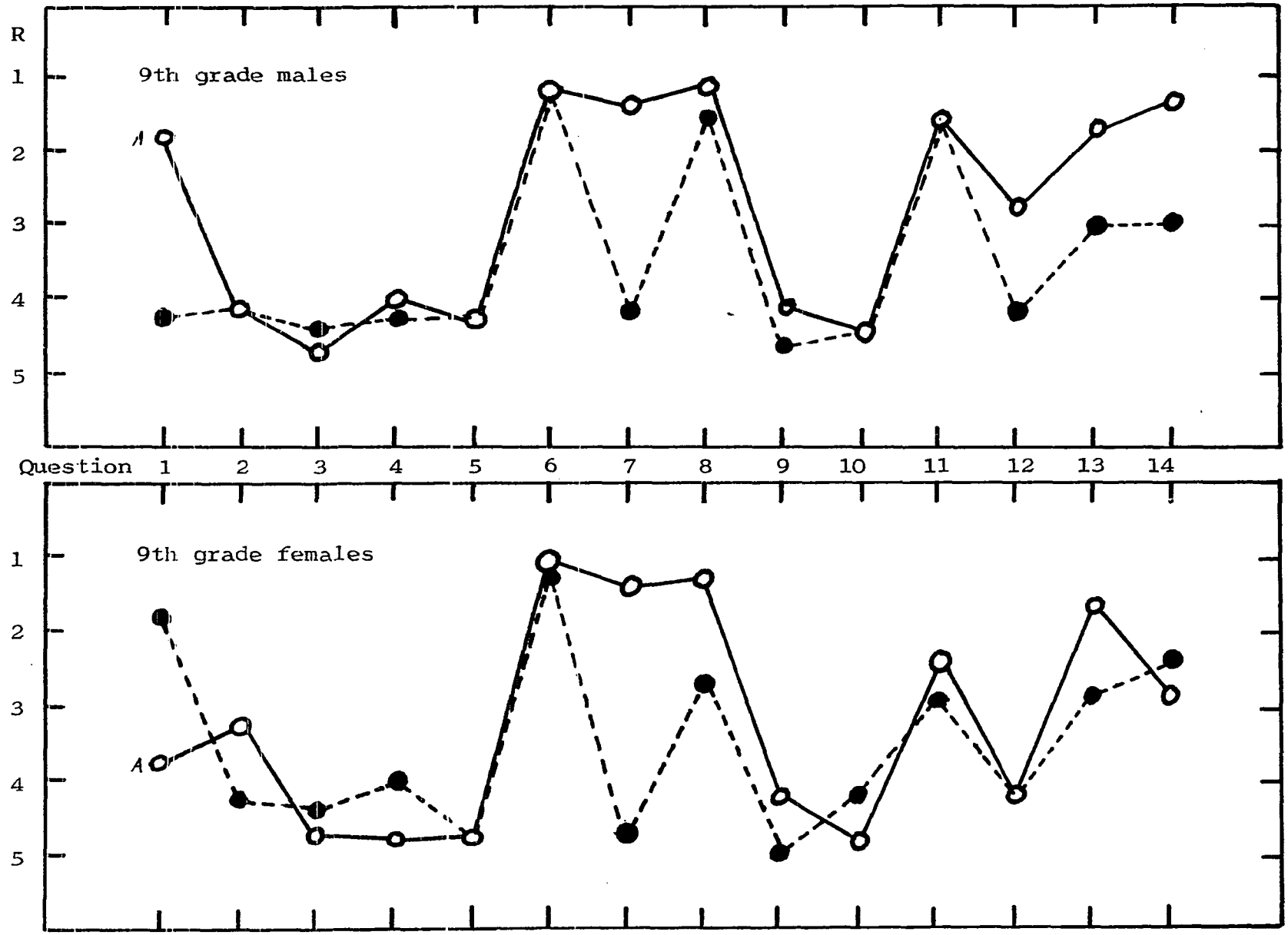

R
1
2
3
4
5
9th grade males
A
Question 1 2 3 4 5 6 7 8 9 10 11 12 13 14
1
2
3
4
5
9th grade females
A

Table 9. Median frequency matrix and Chi-square (χ^2) value on items 1 through 14; N = 300 [a]

Item no.	School A						MOAR[b]
	Male			Female			
	7	8	9	7	8	9	
1	14.16	15.433	9.90	14.32	16.59	7.06	3
	7.84	13.57	7.10	13.68	17.41	12.94	
2	11.56	16.13	11.42	11.83	20.98	15.71	4
	10.44	12.87	5.58	16.17	13.02	4.29	
3	11.06	14.19	9.70	17.19	18.62	8.92	4
	10.94	14.81	7.30	10.81	15.38	11.08	
4	12.75	18.67	13.53	13.50	16.73	9.06	4
	9.25	10.33	3.47	14.50	17.27	10.94	
5	13.15	18.98	13.08	13.98	18.15	9.49	4
	8.85	10.02	3.92	14.02	15.85	10.51	
6	10.65	13.32	7.99	13.98	15.98	9.32	1
	11.35	15.68	9.01	14.02	18.02	10.68	
7	18.51	21.54	12.03	22.51	26.54	13.02	3
	3.49	7.46	4.97	5.49	7.46	6.98	
8	17.21	23.21	15.00	21.35	29.28	14.28	2
	4.79	5.79	2.00	6.65	4.72	5.72	
9	15.35	18.99	10.99	21.99	19.19	5.99	4
	6.61	10.01	6.01	6.01	14.81	14.01	
10	13.04	14.35	8.74	15.35	17.35	6.61	4
	8.96	14.65	8.26	12.65	16.65	13.39	
11	15.45	17.06	9.91	23.30	20.66	7.66	3
	6.55	11.94	7.09	4.70	13.34	12.34	
12	11.33	15.94	10.62	15.85	18.94	10.52	3
	10.67	13.06	6.38	12.15	15.06	9.48	
13	12.28	13.35	9.16	18.20	18.55	8.31	3
	9.72	15.65	7.84	9.80	15.45	11.69	
14	14.81	13.39	7.70	12.63	11.97	5.39	3
	7.19	15.61	9.30	15.37	22.03	14.61	

[a] Table values for χ^2 are 19.675 at 5% and 24.725 at 1%.

[b] Median occurs at row mm =.

* Significant at .05 level.

** Significant at .01 level.

χ^2	df	School B					
		Male			Female		
		7	8	9	7	8	9
14.9471	11	12.59 11.41	13.75 23.25	7.16 9.84	17.06 7.94	9.06 17.94	13.43 7.57
18.9960	11	9.41 14.59	16.25 20.75	6.70 10.30	7.56 17.44	11.12 15.88	11.84 9.16
13.9288	11	7.49 16.51	23.11 13.89	8.49 8.51	8.06 16.94	10.49 16.51	13.19 7.81
12.7585	11	8.89 15.11	17.03 19.97	8.36 8.64	9.59 15.41	11.81 15.19	10.59 10.41
18.2724	11	9.49 14.51	18.30 18.70	9.91 7.09	6.40 18.60	9.91 17.09	9.66 11.34
3.2647	11	13.98 10.02	17.31 19.69	8.66 8.34	14.65 10.35	11.99 15.01	12.65 8.36
86.1722**	11	8.54 15.46	9.63 27.37	4.03 12.97	3.54 21.46	5.05 21.95	5.56 15.44
113.0388**	11	5.49 18.51	5.42 31.58	4.56 12.44	3.28 21.72	5.21 21.79	6.21 14.79
36.6960**	11	14.19 9.81	12.98 24.02	8.99 8.01	7.59 17.41	8.19 18.81	6.00 15.00
6.0223	11	11.04 12.96	15.78 21.22	8.91 8.09	14.91 10.09	15.21 11.79	9.21 11.79
35.4162**	11	9.21 14.79	10.27 26.73	8.91 8.09	6.51 18.49	13.36 13.64	8.21 12.79
7.1297	11	10.42 13.58	12.85 24.15	8.52 8.48	13.14 11.86	13.94 13.06	8.42 12.58
22.3183*	11	16.12 7.88	10.59 26.41	5.28 11.72	18.24 6.76	11.31 15.69	9.12 11.88
72.0402*	11	15.04 8.96	18.51 18.49	7.35 9.65	20.46 4.54	12.51 14.49	10.23 9.77

that there was close negative agreement between 7th graders and 9th grade males (Figures 3 and 5) responding seldom/never. On the other hand, 8th graders and 9th grade females' responses were somewhat different. Most responses among these groups for school A were never. Many responses among these groups for school B were often/always.

* Question 9 related to whether students were allowed to create audio-visual materials such as slides. A significant difference of responses resulted at the .01 level. Figure 2 indicates that there was generally positive agreement among students and their responses were in the often/always categories. Figure 3 shows a school, grade, and sex differences for 7th grade females. Most responses among 7th grade females in school A were never. Many responses for 7th grade females in school B were often/always.
* Question 10 related to whether the use of audio-visual materials made classes more interesting. A slightly broader range of responses, with more than 80% in the categories occasionally, often, and always, was noted.

III. This section of four questions dealt with students knowing when new materials were in the IMC, whether students like to go to the IMC, use media other than books, and the number of times per week they used the IMC.

In general there was less agreement among students responding

to these questions, 11-14. Question 12 related to whether the students liked to go to the resource center. A broad range of response (over 90%) was noted for this question, which included seldom, occasionally, often, and always. Figure 5 indicates there were school differences between 9th grade males. Most males in 9th grade for school A responses were occasionally. Many males in 9th grade for school B responses were often.

Significant differences for questions 11, 13, and 14 were noted:

* Question 11 related to whether students knew when new books or new materials were available in the resource center. A significant difference resulted at the .01 level for students responding to this question. Figures 3 and 4 indicate that there were school, grade, and sex differences. Most 7th grade females and 8th grade males in school A responses were never. Many 7th grade females and 8th grade males in school B responses were often/always.
* Question 13 related to how often student used media other than books from the resource center. A significant difference resulted at the .05 level for students responding to the questions. Figures 4 and 5 indicate that there were school, grade, and sex differences for 8th and 9th grade females relating to their responses.
* Question 14 related to how often students went to the resource center on a weekly basis. A significant difference

resulted at the .05 level for student responses. Figures 3 and 5 indicate that there were school, grade, and sex differences relating to responses.

16-mm Time-lapse Photography Results

The time-lapse film profile of media center activities are reported in this section. This documentation on film is regarded as a visual data record of selected activities as they existed during the period of filming (Figure 6).

Data are related to three specific groups using the card catalog and circulation desk as designated work stations in the instructional media center (Table 10). Data were collected on five consecutive days of filming in each of two media centers. Frequency distributions for use of the two work stations were tabulated

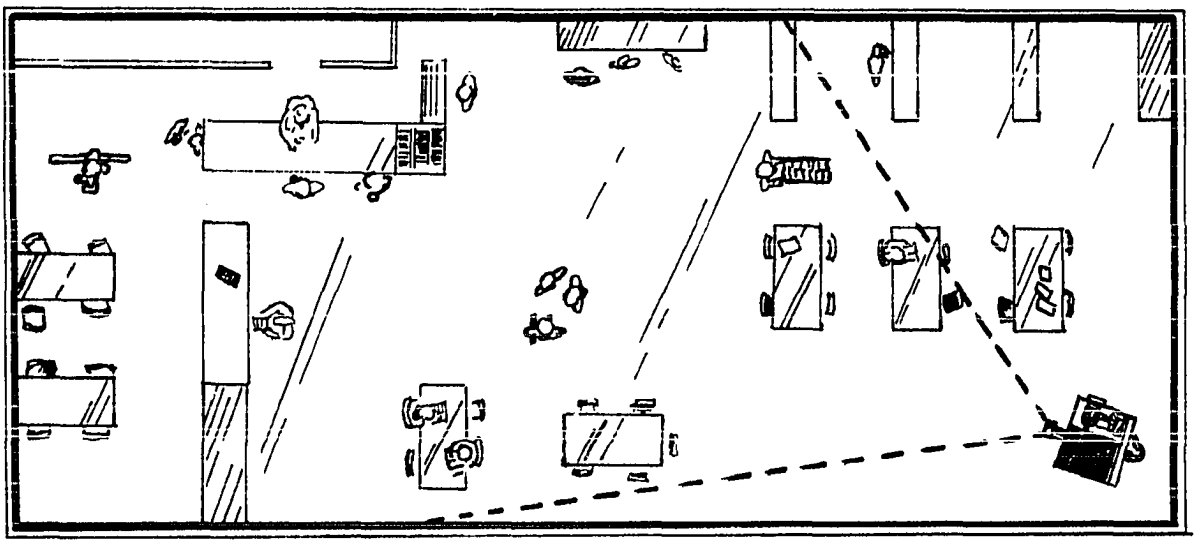


Figure 6. Time-lapse filming media center activities

Table 10. Utilization of two work stations

Name of school School A

Activity(s) recorded	Card Catalogue (C)		Circulation Desk (D)	
		(C)	(D)	Total observations:
Day 1[a]	1. IMC Staff	3	17	187
No. of frames observed: 3731	2. Teacher	7	3	
	3. Students	33	90	
29848 seconds; 8 hours, 20 minutes	4. IMC St. Ast. S.	11	6	
	5. IMC St. Ast. T.	2	5	
Day 2	1. IMC Staff	2		109
No. of frames observed: 3279	2. Teacher	2	4	
	3. Students	30	69	
26232 seconds; 7 hours, 20 minutes	4. IMC St. Ast. S.	1		
	5. IMC St. Ast. T.	1		
Day 3	1. IMC Staff	3		159
No. of frames observed: 3262	2. Teacher	4	3	
	3. Students	24	116	
26096 seconds; 7 hours, 20 minutes	4. IMC St. Ast. S.	7		
	5. IMC St. Ast. T.	2		
Day 4	1. IMC Staff	3		104
No. of frames observed: 3775	2. Teacher	1	5	
	3. Students	35	55	
28313 seconds; 7 hours, 9 minutes	4. IMC St. Ast. S.	5		
	5. IMC St. Ast. T.	0		
Day	1. IMC Staff	4		230
No. of frames observed: 4165	2. Teacher	0	6	
	3. Students	96	117	
31238 seconds; 8 hours, 9 minutes	4. IMC St. Ast. S.	7		
	5. IMC St. Ast. T.	0		

[a]Average day = total number of observations divided by 5 days.

Table 10. (continued)

Name of school School B

Activity(s) recorded	Card Catalogue (C)		Circulation Desk (D)	
		(C)	(D)	Total observations:
Day 1	1. IMC Staff	6		139
No. of frames observed: 4082	2. Teacher	7	2	
	3. Students	48	70	
30615 seconds; 8 hours, 12 minutes	4. IMC St. Ast. S.	5		
	5. IMC St. Ast. T.	1		
Day 2	1. IMC Staff	20		123
No. of frames observed: 4170	2. Teacher	1	1	
	3. Students	38	50	
31275 seconds; 8 hours, 9 minutes	4. IMC St. Ast. S.	13		
	5. IMC St. Ast. T.	0		
Day 3[a]	1. IMC Staff	3		136
No. of frames observed: 4134	2. Teacher	0	3	
	3. Students	36	92	
30615 seconds; 8 hours, 12 minutes	4. IMC St. Ast. S.	1		
	5. IMC St. Ast. T.	1		
Day 4	1. IMC Staff	8		128
No. of frames observed: 4076	2. Teacher	1	3	
	3. Students	31	84	
30670 seconds; 8 hours, 12 minutes	4. IMC St. Ast. S.	1		
	5. IMC St. Ast. T.	0		
Day 5	1. IMC Staff	5		64
No. of frames observed: 4163	2. Teacher	0		
	3. Students	26	31	
31222.5 seconds; 8 hours, 9 minutes	4. IMC St. Ast. S.	2		
	5. IMC St. Ast. T.	0		

[a]Average day = total number of observations divided by 5 days.

by visually inspecting the total film footage and by recording individual group use for each station.

Time-lapse data for the IMC staff are presented in Figures 7-8, student data in Figure 9, and teacher data in Figure 10.

To overcome the burden of analyzing the data from each of 38,837 individual frames from the total footage taken at the two schools, a sampling procedure was developed. The process selected dictated analysis of 50 frames per day for each of the five days of film for each of the two schools.

One inspection of data required the use of one day's film footage for each of the two media centers (Table 11). The negative film used in this inspection was found to have desirable characteristics when recording activities using indoor lighting. However, during the film analysis stage, the negative film was not satisfactory to distinguish one group's activities from another. A positive print was made to overcome the problem.

A second inspection of data required the use of the total film footage for each of the two media centers. An "average day" was computed for each of the centers. The "average days" were determined by dividing the total number of observations for each center by 5 days (Table 11). The rationale for determining "average days" was for the purpose of testing various frame samples. Thus, the activities in two different media centers could be compared, using fewer frames than the five day total of 38,837. This comparison was necessary for the purpose of validating the data collection

Table 11. Analysis of 16-mm time-lapse photography--day number 1

	Utilization of card catalogue (C) and circulation deck (D)					
	Rate of observations:					
	School A. One frame every 8 seconds No. of observations = 3731			School B. One frame every 7.5 sec. = 4134		
	(C)		(D)	(C)		(D)
	Neg.[a]	Pos.[b]	Pos.	Neg.	Pos.	Pos.
Media staff	19	3	17	6	7	0
Students	14	33	90	37	48	70
Teachers	7	7	3[c]	7	2	2[c]
Media staff Assisting students	3	11		5	10	
Media staff Assisting teachers	3	2		1	1	

[a]Neg. = negative film.

[b]Pos. = positive print.

[c]Tabulation of data was terminated at this point. It was determined that image characteristics of the positive print film made it possible to distinguish among and between groups.

procedure.

Since interpretation of research results hinges on the reliability of the measuring procedure, it was essential to determine whether the time-lapse procedure was capable of developing individual profiles of three groups using two work stations.

The sampling tests were conducted as follows. Using the film footage for the two average days, various ratios were tested (1) every tenth and every fiftieth frame and (2) 15, 35, 40, 50, 75, and 100 frames per day. The data were keypunched and frequencies were tabulated. Analysis of the three groups' activities, based on various samplings of the film, resulted in some samples not conforming to the pattern of use established by visually inspecting the total film footage. Thus, they were judged unsatisfactory because several individual cells within the computer printout frequency tables contained no data (Table 12). On the other hand, the computer printout frequency tables for the 50 frame-per-day maintained the same degree of accuracy as represented in Table 12. The 50 frames-per-day sample for 5 days for each IMC is presented in Table 13. Each groups' use of the two work stations are discussed below, with special attention to significant t-test results (Table 14).

Media staff activities

Based on a 50 frame-per-day sample and the results of a t-test, the film results indicate that the instructional media staff was usually available to assist clients in the IMC. As shown in

Table 12. Analysis of 16-mm time-lapse photography--a computed average day for each school

Utilization of card catalogue (C) and circulation desk (D)				
Observation: Every tenth frame				
	School A		School B	
	(C)	(D)	(C)	(D)
Media staff	2	13	0	16
Students	0	7	0	20
Teachers	0	8	0	2

Table 13. Analysis of 16-mm time-lapse photography

Days	(1)	(2)	(3)	(4)	(5)
Utilization of card catalogue[a] (observation: 50 frames per day)					
School A					
Media staff	2	4	2	3	2
Students	10	12	10	15	19
Teachers	2	0	0	0	0
School B					
Media staff	2	31	3	9	8
Students	39	29	31	27	31
Teachers	1	0	0	0	0
Utilization of circulation deck[a] (observation: 50 frames per day)					
School A					
Media staff	34	29	32	27	31
Students	23	26	22	24	31
Teachers	6	7	8	5	3
School B					
Media staff	30	5	40	30	29
Students	24	12	23	15	16
Teachers	2		3	3	2

[a]The simultaneous use of this station by a different number of persons was totaled to represent group use.

Table 14. Analysis of 16-mm time-lapse photography. A comparison of means by groups of the utilization of the card catalogue and circulation desk for a five day period

	Card catalogue	T value	Circulation desk	T value[a]
Media staff (A)	2.6	1.29	32.0	.84
Media staff (B)	9.6		27.0	
Students (A)	14.4	0.41	20.4	1.51
Students (B)	15.7		14.9	
Teachers (A)	5.8	4.7**	1.2	1.7
Teachers (B)	1.7		.2	

[a]Degrees of freedom for T are 8. Table values for T are 1.860 at 5% and 2.896 at 1%.

**Significant at $p<0.01$.

Figure 7, between one and three staff members of the media center were in attendance at the circulation desk.

During the period of time-lapse surveillance, the circulation desk for school A was attended as follows: (1) 0.4% attended by three persons; (2) 7.7% staffed by two persons; (3) 48.4% of the time it was attended by one person; and (4) 44% of the time it was unattended.

School B was attended as follows: (1) 5.6% attended by two persons; (2) 42.8% of the time it was attended by one person; and (3) 51.6% of the time it was unattended.

Figure 8 indicates the percentage of time the card catalogue was used or attended by one or more IMC persons. For school A, 5.2% of the time it was used or attended by one person, and 94.8% of the time the card catalogue was unused and unattended. For school B: (1) 81.6% of the time it was unused and unattended; (2) 17.6% it was attended by one person; and (3) 0.8% of the time it was attended by two persons.

Student activities

Figure 9 indicates the number of times the circulation desk and card catalogue were used by students in schools A and B. The data were based upon a 50 frame-per-day analysis of student use of two work stations. The number of the students varied from none to seven per observation. Of the times that students in school A used the circulation desk during the film surveillance: (1) 0.4% use by

Circulation desk: Attendance time in percent

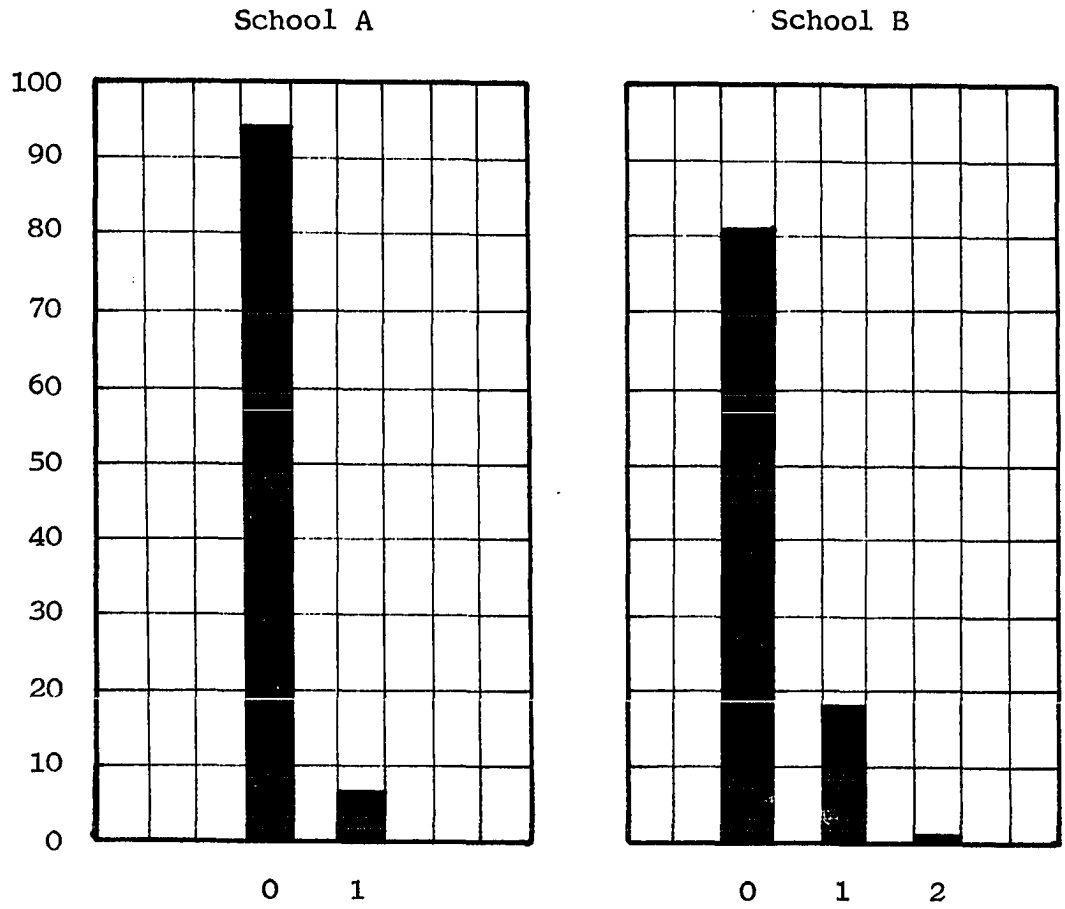


Figure 7. IMC persons attending the circulation desk

Card catalogue: Attendance time in percent

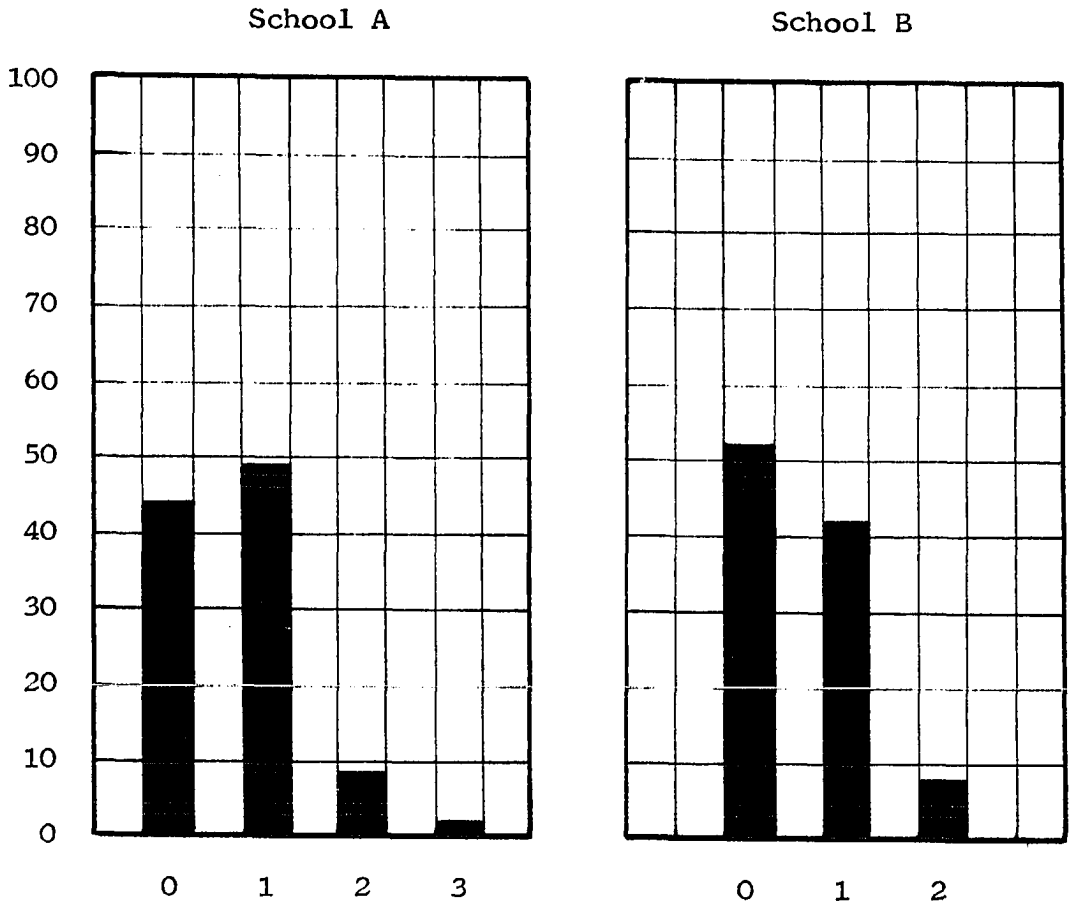
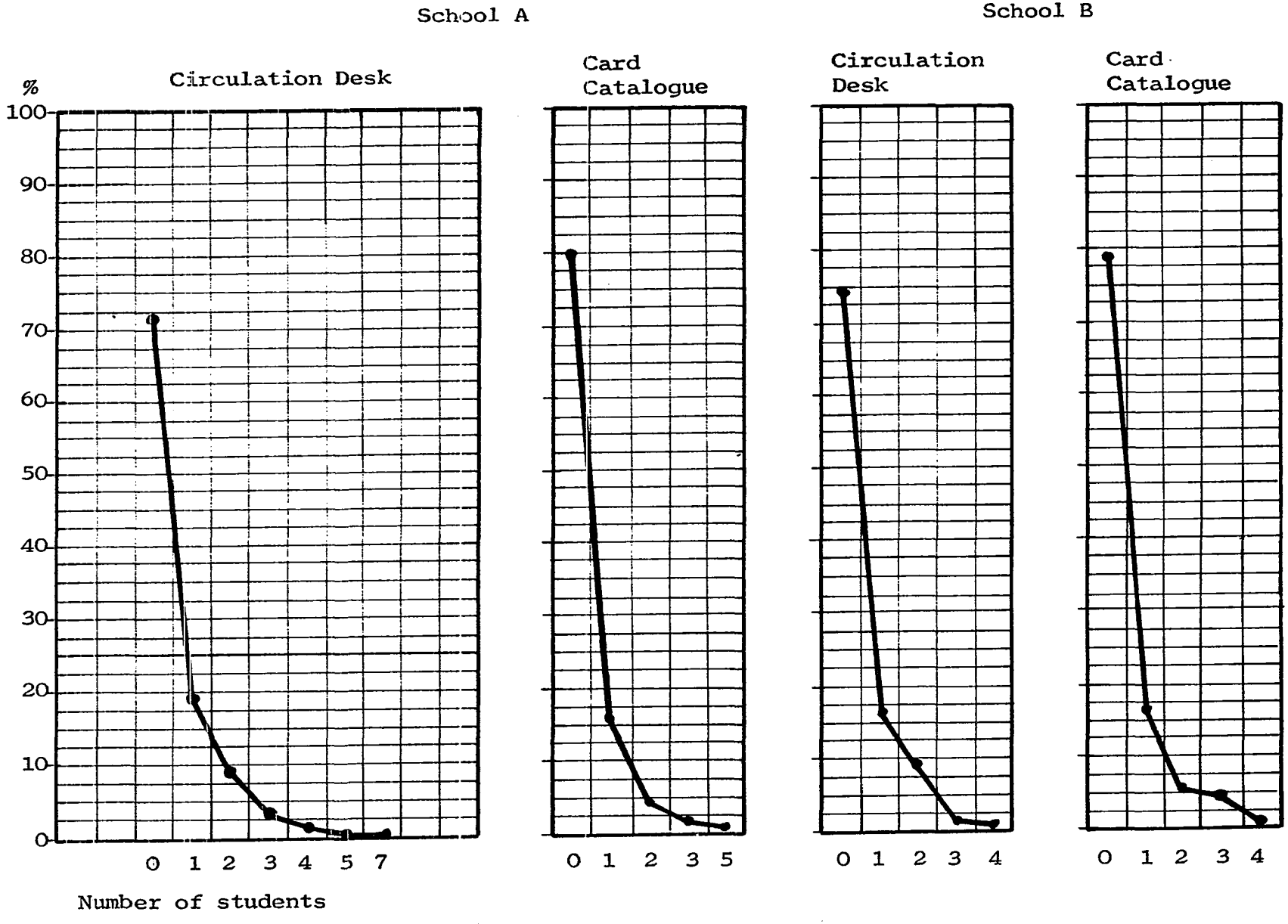


Figure 8. IMC persons attending the card catalogue

Figure 9. Students using circulation desk and card catalogue


School A
School B
Circulation Desk
Card Catalogue
Circulation Desk
Card Catalogue
%
100
90
80
70
60
50
40
30
20
10
0
0 1 2 3 4 5 7
0 1 2 3 5
0 1 2 3 4
0 1 2 3 4
Number of students

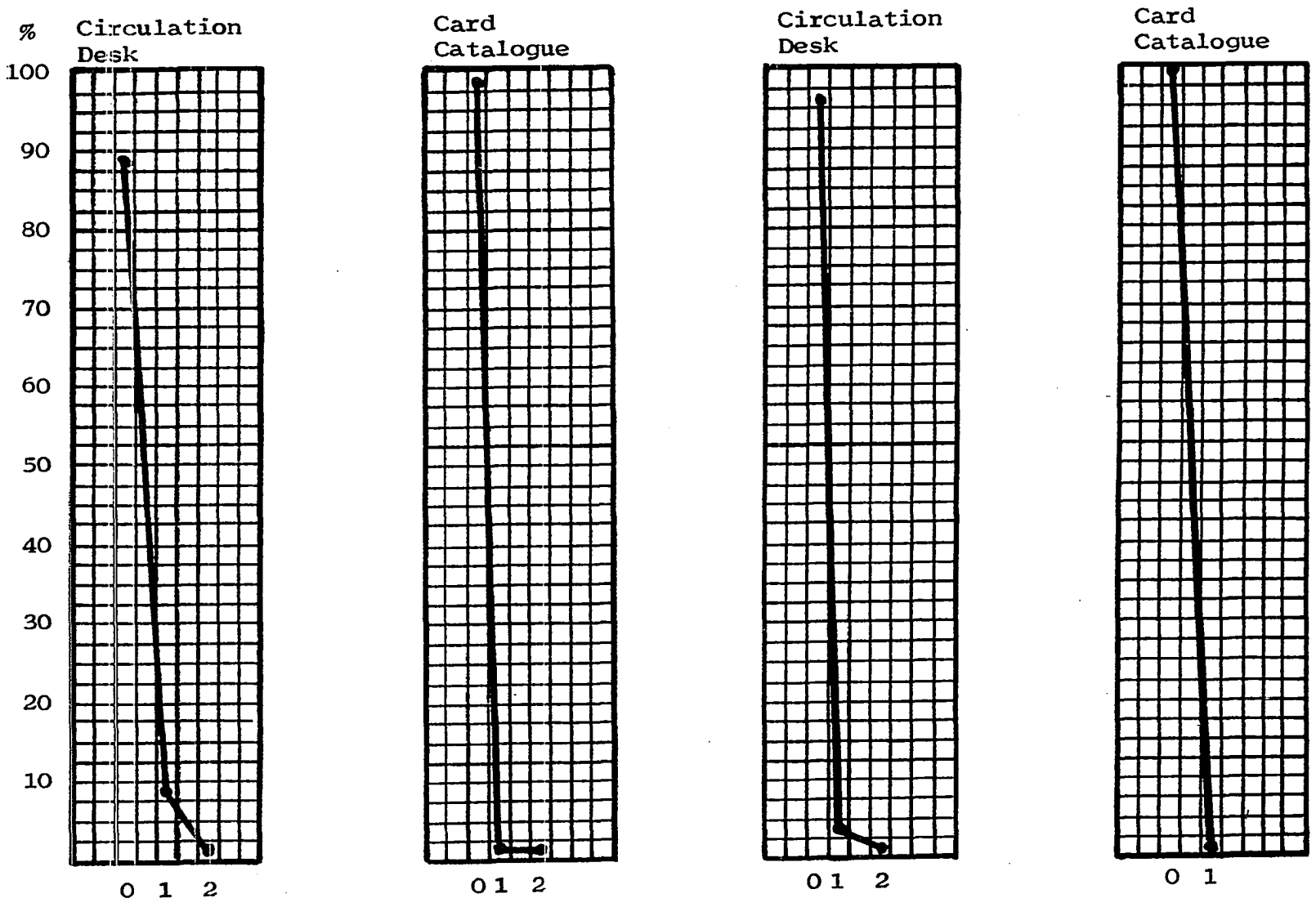
seven students; (3) 0.8% use by four students; (4) 2.4% use by three students; (5) 8% use by two students; (6) 19.2% use by one student; and (7) 68.6% of the time no use was recorded. Of the times that students in school B used the circulation desk during the film surveillance: (1) 0.4% use by four students; (2) 1.6% use by three students; (3) 6.4% use by two students; (4) 16.8% use by one student; and (5) 74.8% of the time no student use was recorded. Of the times that students in school A used the card catalogue: (1) 0.4% use by two students; (2) 0.6% use by one student, and (3) 98% of the time no student use was recorded. For school B, 0.4% use by one student, and 99.6% of the time no student use was recorded.

IMC services provided to students at the two selected work stations were specifically emphasized in the film.

Teacher activities

Figure 10 shows the percentage of time the circulation desk and the card catalogue were used by the teachers in schools A and B. The data presented are based upon a 50-frame-per-day analysis of teachers of two work stations. The number of teachers varied from one to two. Of the times that teachers in school A used the circulation desk: (1) 1.2% use by two teachers, (2) 9.6% use by one teacher; and (3) 89.2% of the time no use was recorded. For school B: (1) 0.4% use by two teachers; (2) 3.6% use by one teacher; and (3) 96% of the time no use was recorded. Of the times that teachers in school A used the card catalogue: (1) 0.4% use by two teachers; (2) 1.6% use by one teacher; and (3) 98% of the time no use was

Figure 10. Teachers using circulation desk and card catalogue


%
Circulation Desk
Card Catalogue
Circulation Desk
Card Catalogue
100
90
80
70
60
50
40
30
20
10
0 1 2
0 1 2
0 1 2
0 1
School A
School B
Number of students

recorded. For school B, 0.4% use by one teacher and 99.6% no use was recorded.

As indicated in Table 14, the findings showed that there were generally no significant differences in the utilization of the card catalogue and circulation desk by two of the three groups. However, significant differences were found for teachers in school A at the 0.1 level, utilizing a t-test procedure. The results indicated that teachers in School A used the card catalogue significantly more often, as established by the time-lapse photography record (see Table 14).

Comparison of Data from Checklists and Film

One of the objectives of the study was to compare data from the Checklists and the film. It was determined that areas in the Checklists fell into these categories.

Areas where <u>specific</u> comparisons were possible. Results from this area were expressed as frequency distributions. The frequency distributions were compared among and between groups and the data were analyzed by comparison with the film record and by statistical test.

Areas where <u>general</u> comparisons were possible. These areas were expressed as inferences based on observed behaviors and/or performance patterns as a result of inspecting the film record. Generalizations to perceptions revealed through the Checklist responses could be made.

Areas that were unable to be compared. These areas, in effect, showed no results other than group responses which could be discussed in terms of comparisons of opinions among and between groups.

In the following situations specific factual judgments could be made based upon responses to activities, also there were identifiable relationships between Checklists and film.

Adequate services were provided to IMC clientele. Staff (question 1) and student (question 3) Checklists results indicated 80-90% positive perceptual agreement. The film surveillance substantiated perceptions, indicating that IMC staff were usually available to assist IMC clientele.

Hours of operation and seating capacity of the IMC were adequate. Students were able to use IMC without feeling drowded. Staff Checklist results (question 22) indicated differences in perception between teacher groups relating to operating hours and seating capacity. Student Checklist results (question 2) indicated 80-90% positive perceptual agreement relating to the adequacy of space within the IMC. The film record substantiated student perceptions, indicating that adequate space was always available for a class of thirty or more, in addition to normal use.

All classrooms were equipped for the greatest possible use of media. Staff Checklist results (questions 10 and 36) indicated a broad pattern of perception. The film record was unable to provide any information relating to the extent that classrooms are equipped to use media, but a variety of media were shown leaving the IMC.

This media was transported by IMC aides and the IMC clientele. This would seem to indicate that to some extent areas in the school other than the IMC are equipped to use media. The presence of various types of projectors and other hardware would also seem to indicate that an assortment of nonprint media were available to be used in conjunction with this type of equipment.

The educational media program is adequately financed. Staff Checklist results (question 12) indicated a similar pattern of perception as recorded in previous questions. Also, the film record was unable to supply factual evidence relating to financing of the IMC program. The film record does indicate that the number of IMC staff and aids and the variety of media shown strongly suggest that a source of finance is available.

The IMC provided quantity and a variety of media for instructional purposes and self-study. Staff (questions 4 and 31) and the student (question 4) Checklist results indicated 80-90% positive perceptual agreement between groups. Nevertheless, the film record was unable to substantiate group perception. On the other hand, the film record indicated that an assortment of media were available during the film surveillance and this media was handled by IMC clientele.

Adequate IMC staff were available to assist teachers and students. Staff (questions 2, 16, 21, 23, and 41) and student (question 5) Checklists results indicate 80-90% positive perceptual agreement among and between groups. Once again, the film record

was unable to substantiate group perceptions concerning quantity and quality of (in-service) services provided and whether IMC staff were qualified. The film record does indicate that IMC staff were usually available to assist teachers and students.

All school-owned media were catalogued in the IMC card catalogue. Staff Checklist results (question 9) indicated 80-90% close perceptual agreement. Here again, the film record was unable to provide the necessary data to determine the extent that all school-owned media were catalogued within the IMC. Nevertheless, the film record suggests that some quantity of school media are catalogued within the IMC. During the film surveillance, IMC staff, students, and teachers were shown using the card catalogue. Thus, one possible assumption is that it was used to locate school-owned catalogued media.

Most teachers and students used appropriate educational media for instruction and self-study. The film record was unable to supply factual data which would provide proof as for what purposes media was used by teachers and students. The film surveillance indicated a consistent use of media by teachers and students (staff questions 24 and 25).

The location of the resource center restricted its use by teachers and students. Staff Checklist results (questions 27 and 28) indicated 80-90% perceptual agreement. The film surveillance was unable to provide the necessary data to determine if the location of the IMC was a positive or negative factor in terms of the

extent that it is used. The film record indicated that the number of teachers and students that used the IMC is less than the total teacher and student enrollment.

IMC has sufficient storage space for currently owned media. Staff Checklist results (question 32) indicated 80-90% agreement. The film surveillance was unable to supply factual data as to the extent of storage space and the quantity of space available for currently owned media. The film record did show media stored on shelves and media being transported from areas beyond the viewing angle of the lens. Thus, the assumption can be made that to some extent storage space was available.

How often do you use media other than books from your resource? Student Checklist results (question 13) indicated that the pattern of responses were widespread. As indicated in a previous chapter, there were statistical differences in responses. Data of a factual nature were unavailable from the film surveillance, other than that students were shown in the film using media.

How often do you go to the IMC each week? Student Checklist results (question 14) indicated that the pattern of responses were widespread. Also, this question showed statistical differences in responses. Factual data were unavailable from the film surveillance which would indicate how often students entered the IMC each week.

In summary, the film surveillance did permit some additional information regarding perception as revealed through the Checklist.

SUMMARY

The purpose of the study was to determine whether the use of a multi-facet approach would increase the accuracy of describing instructional media center programs (IMC).

Two specific objectives were: (1) to document the IMC activities by two methods to determine if the roles of the IMC and staff are the same as observed roles through recording activities within a school IMC utilizing 16-mm time-lapse photography and recording perceptions of an IMC program utilizing two adaptations of Fulton's (1970) Self-Evaluation Checklist; and (2) to compare film results with the Checklists to determine relationships.

The sample consisted of the instructional media center in two Iowa junior high schools and the administration, teachers, and students of these schools.

16-mm Time-lapse

Visual data were collected using one unattended 16-mm time-lapse camera in each IMC, filming IMC clientele using the card catalogue and circulation desk. Filming of selected IMC activities covered 40 hours and/or five days per IMC. Frequency distributions of IMC staff, students, and teachers using two work stations were tabulated.

A 50 frame-per-day sample was collected from the total film footage to analyze the 38,837 time-lapse observations.

A t-test analysis of film data were used to determine the degree of relationship among groups in two schools using two work stations.

The t-test results indicated no significant difference of use by IMC staff and students. The t-test results showed a significant difference in the use of one work station by teachers in the two schools.

Checklists

Fulton's (1970) Self-Evaluation Checklist was adopted to provide a staff Checklist of 41 items and a student Checklist of 14 items for use recording perceptions of the IMC program. Checklists were administered to 372 IMC staff, administrators, teachers, and students within two Iowa public junior high schools.

The relationships of responses to Checklist items were analyzed among groups using a Chi-square median test. The results indicated that the degree of relationship of responses among and between all groups was high. The relationship of responses among and between groups responding to items in the staff Checklists were higher than the relationship of responses among students responding to items in the student Checklist.

Comparison of Checklists with Film Record

A comparison of Checklist results with the film surveillance revealed that limited specific comparisons and some general comparisons could be made. One such area related to media services provided by the IMC. High positive agreement occurred among and between groups responding to this area on the Checklists indicating that the IMC staff were available to assist students and teachers.

Film surveillance results substantiated the Checklist perceptions.

A second area related to IMC operating hours and seating capacity. The perceptions of teachers in this area were not substantiated by the film results. Film results indicated that space, above the normal use, was always available for a class of thirty or more even though the teachers indicated that space was inadequate.

Analysis of the film record also permitted general observation regarding the facility and use of materials in the IMC. This analysis also indicates that the film record does detect differences in activities from one setting to another.

Conclusions

The combined use of Checklists and time-lapse film used in this investigation to study selected groups and activities was intended to increase the amount of information essential to analyzing the functions of the instructional resources center. The Checklist technique has been used in many studies to gain information about individuals and groups. The general characteristics of the Checklist is that it is a useful means of obtaining a wide variety of information, such as sampling attitudes and comparing attitudes between similar and dissimilar groups.

Nevertheless, incorporated into the use of Checklists are several problems which often influence the results obtained: (1) that of response set, a tendence for a person to give different responses to items in one form than in another form; (2) that of

social desirability, or of the individual giving a response which may not be true, but which is socially approved by society; and (3) that of misinterpretation, reading something into a question that was not intended, influence due to situation, time and/or circumstance of testing.

Time-lapse filming has been used in a limited number of studies in educational settings as an attended or unattended observation technique for the purpose of gaining information about individual and group activities. The salient characteristic of time-lapse filming is that it has no prejudices or preconceptions which might color its usefulness as an observation technique.

A second characteristic of time-lapse is that it provides an accurate visual record. This record provides facts which can be verified. A subjective record such as a Checklist cannot do this. In addition, the time-lapse record allows the viewer to make subjective judgments.

Two limitations related to using time-lapse film are (1) the camera must be installed in one location for a considerable length of time making multiple location observations with one camera impossible and (2) it only records what is directly in front of the lens. Thus, one difference between the Checklist and time-lapse film was that the Checklist was able to subjectively assess the total IMC program, whereas the film was restricted to observing limited selected aspects of the IMC program.

The Checklist is able to characterize perceptual aspects of the

IMC program within and outside of the center. The Checklists in this study recorded a number of statistically significant differences in responses among students. The time-lapse filming alone was able to characterize visual aspects of selected IMC activities, where the camera was installed and within a viewing angle of the lens. The time-lapse record alone recorded a statistically significant difference in the use of the work station among teachers.

Used together, the Checklists and time-lapse filming were useful in collecting data relating to similar events or phenomena. The two methods provided data about common events that could be cross checked as well as separate data that expanded the pool of information regarding the function of the IMC. Neither instrument should be used without adequate awareness of its limitations. Thus, this study suggests a multi-facet approach does increase the accuracy of describing instructional media center programs.

Recommendations for Additional Research

The exploratory nature of this study offers only a tentative evaluation of the potential use of combined approaches for describing and evaluating school media center programs. To further test the potential of combining a Checklist with time-lapse photography, the following areas of research are suggested:

1. The study should be repeated with the Checklist and time-lapse photography. However, it should be restricted to a single study site, utilizing the potential of this

approach to an in-depth study.

2. The study should be repeated by a team of researchers rather than a single individual, since the logistics of transportation, installation, and maintenance of more than one camera operation can be problematic for a single individual.
3. The Checklists should be designed to parallel the collection of visual data.
4. Checklists for administrators and IMC staff should be administered using an interview procedure.

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APPENDIX A: CHECKLIST FOR PRINCIPAL AND TEACHER

CHECKLIST

Describing an Instructional Resource Center

This questionnaire form is for the purpose of describing the Junior High School Educational Instructional Resource Center. It is hoped that the information gathered will be helpful in identifying and better understanding the function of all Junior High School Educational Instructional Resource Center Programs.

Directions: Circle one (your title is): Principal, Assistant Principal, Resource Center Staff, Teacher, or Student.

Please write on the next page(s) the desired answer or put a check in the appropriate space.

DIRECTIONS: Answer each of the following questions by putting a check in the column which expresses your feelings on each of the items concerning the library/media program in your school.

NOTE: The term "media" refers to both print and audio-visual resources and services.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
I. Institutional Educational Media Services					
A. Commitment to the media program					
1. The resource center offers adequate services.					
2. Adequate clerical and technical staff persons are available to assist teachers and students.					
3. The resource center services are well coordinated.					
B. Commitment to Educational Media as an integral part of instruction					
1. The resource center program provides quantity and variety of educational media for instructional purposes.					
2. The resource center staff encourages the faculty to use media as integral parts of instruction.					
3. The resource center staff tries to make outside resources (city library, university library, industrial materials, etc.) available to teachers and students.					
4. The resource center staff regularly weeds out old print and non-print materials.					
5. All school owned media is controlled by the resource center.					
6. All school owned media is catalogued in the resource center's card catalogue.					
C. Commitment to providing Educational Media facilities					
1. All classrooms are equipped for the greatest possible use of educational media.					
2. All old classrooms are being modified as fast as possible to provide for effective use of media.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
D. Commitment to financing the Educational Media Program					
1. The educational media program is adequately financed.					
2. The resource center receives too much financing.					
3. The resource center's budget reflects long-range educational media plans.					
4. The resource center's budget includes provision for special media for unusual curriculum problems.					
E. Commitment to staffing the Educational Media Program					
1. The resource center's services are provided by qualified professional media specialists.					
2. An adequate resource center clerical and technical staff is provided to permit the teaching staff to use their time in the performance of professional tasks.					
II. Educational Media Services-Curriculum and Instruction					
A. Consultative Services in Educational Media Utilization					
1. The resource center staff works as a part of the regular faculty in analyzing teaching needs and in designing, selecting, and using educational media to meet these needs.					
2. Teachers in this school participate in media selection for the resource center.					
3. Teachers generally experience no difficulty in obtaining the materials they request.					
B. Media Services to Educational Preparation Program					
1. The resource center provides adequate in-service education activities relating to the utilization of educational media.					
2. The hours of operation of the resource center, and its seating capacity, permit full use of the facility at any reasonable hour.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
3. Efforts are made to orient thoroughly teachers and students to the varied resources of the resource center.					
C. Faculty-Student use of Educational Media					
1. Most faculty members use appropriate educational media from the resource center for instructional purposes.					
2. Students also use appropriate media for individual and group study as well as for class presentations.					
D. Involvement of Media Staff in planning					
1. The professional education resource staff is involved with the faculty in planning for the use of educational media.					
III. The Educational Media Center					
A. Location and Accessibility of Educational Media					
1. The location of the resource center restricts its use to most faculty members.					
2. Also the location of the resource center restricts its use to most students.					
B. Dissemination of Media Information					
1. Information concerning educational media is frequently disseminated to the faculty, students, and staff as a matter of policy.					
2. The information disseminated to the faculty is useful information.					
C. Availability of Education Media					
1. There is sufficient quantity of educational media to insure their delivery to the point of use at any time during the week in which they are requested.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
D. Storage and Retrieval of Media	1	2	3	4	5
1. The resource center has enough storage shelves and drawers for currently owned instructional materials.					
E. Maintenance of Media					
1. All educational media are inspected after each usage.					
2. All educational media are cleaned and repaired on a regular basis, or when inspection indicates the need.					
F. Production of Media					
1. The resource staff produce a variety of educational media not otherwise available, and meet most production demands for such media as slides, graphics, and recordings.					
IV. Physical Facilities for Educational Media					
A. Physical Facilities in Existing Classrooms					
1. Audio-visual equipment received from the resource center is compatible with classroom facilities.					
V. Budget and Finance of the Educational Media Program					
A. Reporting Finance Needs					
1. The financial needs of the educational media program are regularly reported to the chief administrative officer in charge of the instruction.					
B. Basis for Budget Allocations					
1. The budget for the resource center is based almost entirely on immediate needs though some consideration is given to long-range goals.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
C. Development of Media Budget					
1. The budget of the resource center program reflects the media needs of the entire institution.					
2. The budget for the resource center is developed by the professional media staff in consultation with the faculty and school administrators.					
VI. Educational Media Staff					
1. The resource center program is directed by well-qualified educational media specialists who are provided with sufficient professional, clerical and technical staff to provide adequate educational media services.					

APPENDIX B: CHECKLIST FOR STUDENT

CHECKLIST

Describing an Instructional Resource Center

This questionnaire form is for the purpose of describing the Junior High School Educational Instructional Resource Center. It is hoped that the information gathered will be helpful in identifying and better understanding the function of all Junior High School Educational Instructional Resource Center Programs.

Directions: Circle one (your title is): Principal, Assistant Principal, Resource Center Staff, Teacher, or Student.

Please write on the next page(s) the desired answer or put a check in the appropriate space.

Name of school_____

DIRECTIONS: Circle appropriate items - Grade 7 8 or 9 Male or Female

NOTE: The resource center in your school may be called the library or media center. The term "media" refers to both print and audio-visual materials and services.

	Never	Seldom	Occasionally	Often	Always
	1	2	3	4	5
1. Are you allowed to go to the resource center whenever you have free time?					
2. Are you able to get into the resource center and use it without feeling crowded?					
3. Can you get help in the center if you need it?					
4. Does the resource center have the materials you need?					
5. Do you get instruction in how to find materials in the resource center?					
6. How often have you been asked to help choose materials for the resource center?					
7. Does the school allow you to take home materials other than books from the resource center?					
8. Does the school allow you to take home viewing and listening equipment from the resource center?					
9. Are you allowed to create audio-visual media such as slides, tapes, or transparencies?					
10. Does using audio-visual media make your classes more interesting?					
11. Do you know when new books or new materials are available in the resource center?					
12. Do you like to go to the resource center?					
13. How often do you use media other than books from your resource center?					

	1	2	3-4	5	more than 5
14. How often do you go to the resource center each week (number of times per week)?					

APPENDIX C: CHECKLIST FOR RESOURCE CENTER STAFF

CHECKLIST

Describing an Instructional
Resource Center

This questionnaire form is for the purpose of describing the Junior High School Educational Instructional Resource Center. It is hoped that the information gathered will be helpful in identifying and better understanding the function of all Junior High School Educational Instructional Resource Center Programs.

Directions: Circle one (your title is): Principal, Assistant Principal, Resource Center Staff, Teacher, or Student.

Please write on the next page(s) the desired answer or put a check in the appropriate space.

A. School
1. Name_____Grade levels_____
2. State_____
3. Student enrollment_____Faculty enrollment_____
4. Size of physical plant (number of buildings)_____
5. Approximate age of school_____

B. Resource Personnel
1. Title of your position_____
2. Full-time: Yes_____No_____
3. Certified: (from which state) Yes_____No_____State_____
4. Highest degree held: Bachelor_____Master_____Doctorate_____
5. Number of years teaching experience (including this year): 1-5_____
6-12_____13-20_____More than 20_____
6. Undergraduate major_____graduate major_____
_____graduate major_____
7. College semester hours taken in media:
a. Library Science 0_____1-4_____5-10_____more than 10_____
b. Audiovisual 0_____1-4_____5-10_____more than 10_____
8. Training for the job was supervised on-the-job training: Yes_____No_____
9. You have worked in a similar position in another school: Yes_____No_____
10. Job description is available for this job: Yes_____No_____
11. Years on this job_____

C. Resource Center
1. Location of center (building)_____Floor(s)_____
2. Floor space: Print Media_____Non-print Media_____
3. Years of existence of the center_____Years in present loc._____
4. Hours of operation: from_____to_____
5. Approximate number of clients served daily_____weekly_____
6. Print and non-print materials are shelved separately: Yes_____No_____
7. Written policies, rules, or regulation for center: Yes_____No_____
8. Above is openly displayed: Yes_____No_____
9. Resource center provides a printed up-to-date listing of materials, equipment, and services available: Yes_____No_____
10. Request for the above are made in written form_____by phone_____
in person_____
11. Meetings for resource staff are held weekly_____monthly_____other_____
12. Resource staff exchanges opinions and ideas: This is how it is now -
poor_____fair_____good_____excellent_____
13. The present size of the resource center facilities are adequate for the needs of the school: Yes_____No_____
14. The present size of the print and non-print areas are equal: Yes_____No_____
15. The present size of the print areas are inadequate and the non-print areas should be reduced: Yes_____No_____
16. The present size of the non-print areas are inadequate and the print areas should be reduced: Yes_____No_____
17. The present size of the print and non-print areas are inadequate and should be enlarged: Yes_____No_____
18. The annual budget for the library/media center collection represents an expenditure of_____per pupil. Is this amount adequate:
Yes_____No_____

19. Check each of the following items which describes the in-service programs held, or planned, during the current school year for the purpose of upgrading the media competency of the faculty and staff in this junior high school: No formal program_____ 1 media workshop_____ 2 or more media workshops_____ 1 media demonstration_____ 2 or more media demonstrations_____

20. Check the types of improvements in library/media services that have been completed in your school building in the past five years: Budget_____ staff_____ facilities_____ utilization_____ policies_____

21. Percentage of time spent in the following areas:

a. Administration.....	_____
b. Instruction.....	_____
c. Advisory capacity to faculty (instructional development)	_____
d. Production.....	_____
e. Maintenance & repair of hardware.....	_____
f. Delivery and operation of media equipment.....	_____
g. Processing of software.....	_____
h. Circulation of software.....	_____
i. Scheduling of equipment.....	_____
j. Committee work/curriculum planning.....	

22. Daily schedule (duties/responsibilities):

	Monday	Tuesday	Wednesday	Thursday	Friday
7:00					
7:30					
8:00					
8:30					
9:00					
9:30					
10:00					
10:30					
11:00					
11:30					
12:00					
12:30					
1:00					
1:30					
2:00					
2:30					
3:00					
3:30					
4:00					
4:30					
5:00					

DIRECTIONS: Answer each of the following questions by putting a check in the column which expresses your feelings on each of the items concerning the library/media program in your school.

NOTE: The term "media" refers to both print and audio-visual resources and services.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
I. Institutional Educational Media Services					
A. Commitment to the media program					
1. The resource center offers adequate services.					
2. Adequate clerical and technical staff persons are available to assist teachers and students.					
3. The resource center services are well coordinated.					
B. Commitment to Educational Media as an integral part of instruction					
1. The resource center program provides quantity and variety of educational media for instructional purposes.					
2. The resource center staff encourages the faculty to use media as integral parts of instruction.					
3. The resource center staff tries to make outside resources (city library, university library, industrial materials, etc.) available to teachers and students.					
4. The resource center staff regularly weeds out old print and non-print materials.					
5. All school owned media is controlled by the resource center.					
6. All school owned media is catalogued in the resource center's card catalogue.					
C. Commitment to providing Educational Media facilities					
1. All classrooms are equipped for the greatest possible use of educational media.					
2. All old classrooms are being modified as fast as possible to provide for effective use of media.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
D. Commitment to financing the Educational Media Program					
1. The educational media program is adequately financed.					
2. The resource center receives too much financing.					
3. The resource center's budget reflects long-range educational media plans.					
4. The resource center's budget includes provision for special media for unusual curriculum problems.					
E. Commitment to staffing the Educational Media Program					
1. The resource center's services are provided by qualified professional media specialists.					
2. An adequate resource center clerical and technical staff is provided to permit the teaching staff to use their time in the performance of professional tasks.					
II. Educational Media Services-Curriculum and Instruction					
A. Consultative Services in Educational Media Utilization					
1. The resource center staff works as a part of the regular faculty in analyzing teaching needs and in designing, selecting, and using educational media to meet these needs.					
2. Teachers in this school participate in media selection for the resource center.					
3. Teachers generally experience no difficulty in obtaining the materials they request.					
B. Media Services to Educational Preparation Program					
1. The resource center provides adequate in-service education activities relating to the utilization of educational media.					
2. The hours of operation of the resource center, and its seating capacity, permit full use of the facility at any reasonable hour.					

Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1	2	3	4	5

3. Efforts are made to orient thoroughly teachers and students to the varied resources of the resource center. | | | | | |

C. Faculty-Student use of Educational Media

1. Most faculty members use appropriate educational media from the resource center for instructional purposes. | | | | | |

2. Students also use appropriate media for individual and group study as well as for class presentations. | | | | | |

D. Involvement of Media Staff in planning

1. The professional education resource staff is involved with the faculty in planning for the use of educational media. | | | | | |

III. The Educational Media Center

A. Location and Accessibility of Educational Media

1. The location of the resource center restricts its use to most faculty members. | | | | | |

2. Also the location of the resource center restricts its use to most students. | | | | | |

B. Dissemination of Media Information

1. Information concerning educational media is frequently disseminated to the faculty, students, and staff as a matter of policy. | | | | | |

2. The information disseminated to the faculty is useful information. | | | | | |

C. Availability of Education Media

1. There is sufficient quantity of educational media to insure their delivery to the point of use at any time during the week in which they are requested. | | | | | |

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
D. Storage and Retrieval of Media					
1. The resource center has enough storage shelves and drawers for currently owned instructional materials.					
E. Maintenance of Media					
1. All educational media are inspected after each usage.					
2. All educational media are cleaned and repaired on a regular basis, or when inspection indicates the need.					
F. Production of Media					
1. The resource staff produce a variety of educational media not otherwise available, and meet most production demands for such media as slides, graphics, and recordings.					
IV. Physical Facilities for Educational Media					
A. Physical Facilities in Existing Classrooms					
1. Audio-visual equipment received from the resource center is compatible with classroom facilities.					
V. Budget and Finance of the Educational Media Program					
A. Reporting Finance Needs					
1. The financial needs of the educational media program are regularly reported to the chief administrative officer in charge of the instruction.					
B. Basis for Budget Allocations					
1. The budget for the resource center is based almost entirely on immediate needs though some consideration is given to long-range goals.					

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
	1	2	3	4	5
C. Development of Media Budget					
1. The budget of the resource center program reflects the media needs of the entire institution.					
2. The budget for the resource center is developed by the professional media staff in consultation with the faculty and school administrators.					
VI. Educational Media Staff					
1. The resource center program is directed by well-qualified educational media specialists who are provided with sufficient professional, clerical and technical staff to provide adequate educational media services.					

APPENDIX D: TIME-LAPSE EQUIPMENT

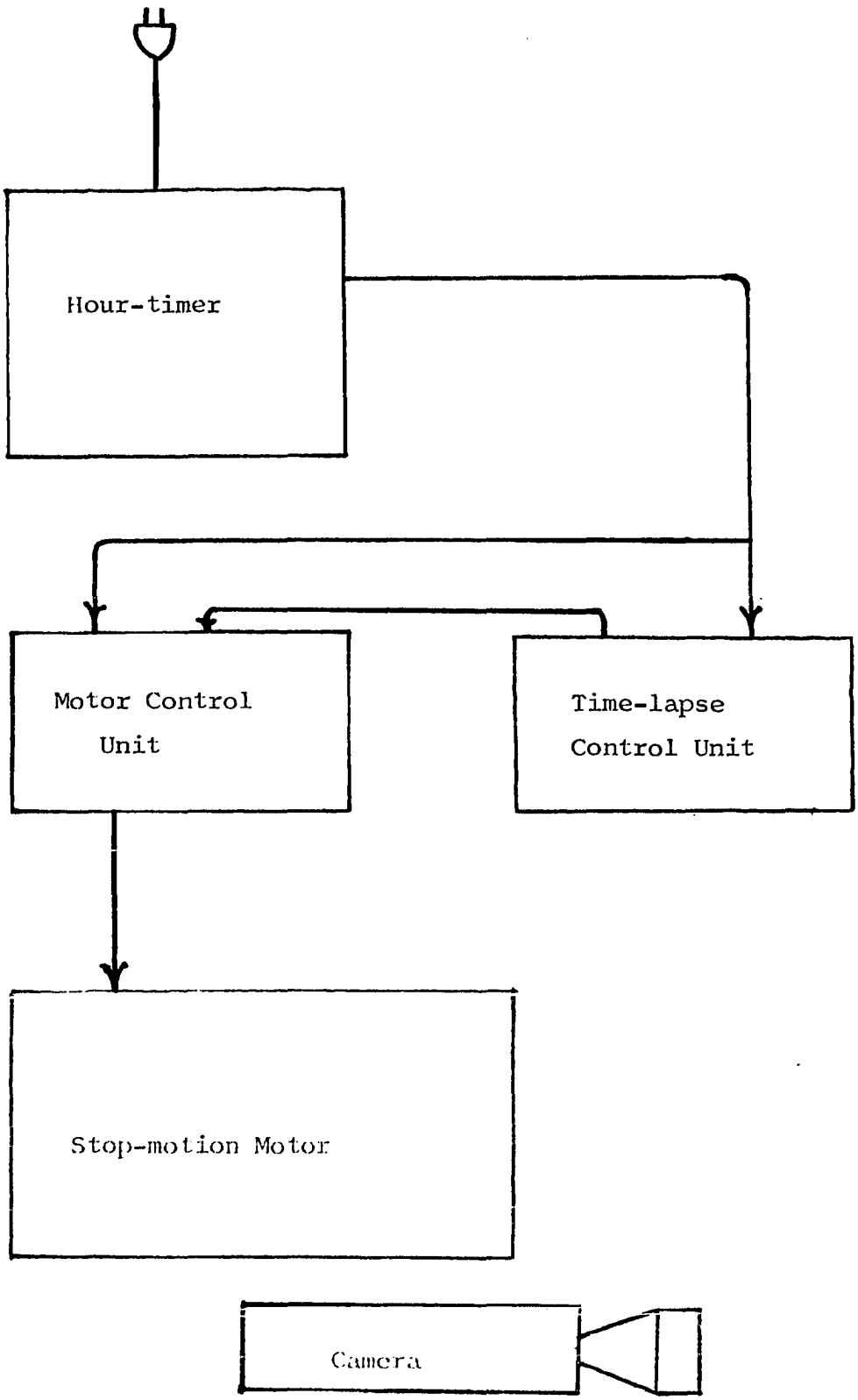

Figure 11. Block diagram of time-lapse control units

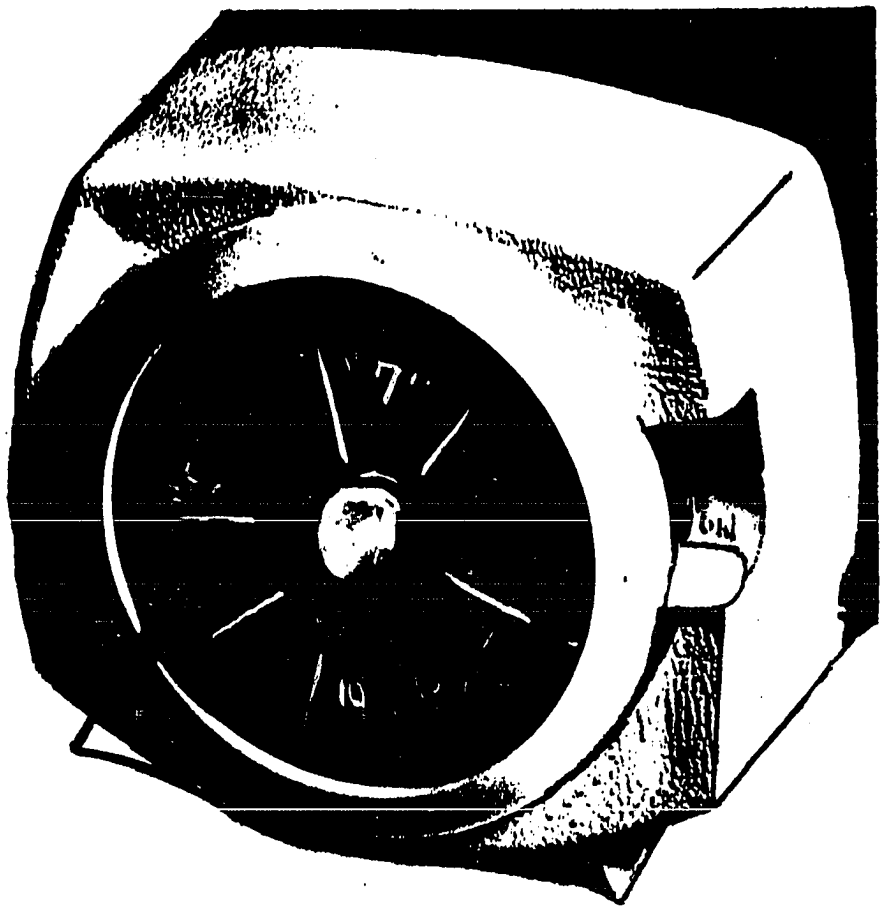

Figure 12. Hour-timer

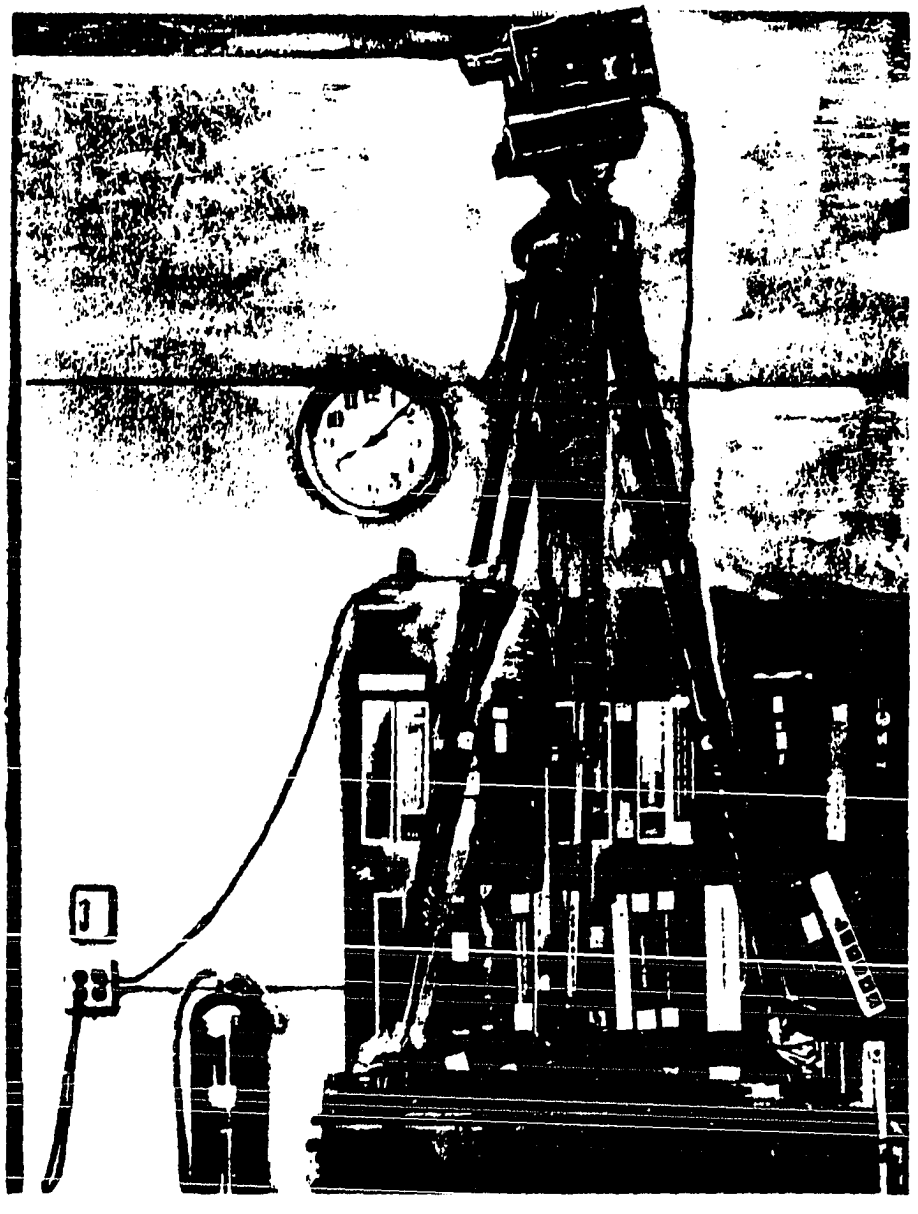

Figure 13. Elevated time-lapse camera

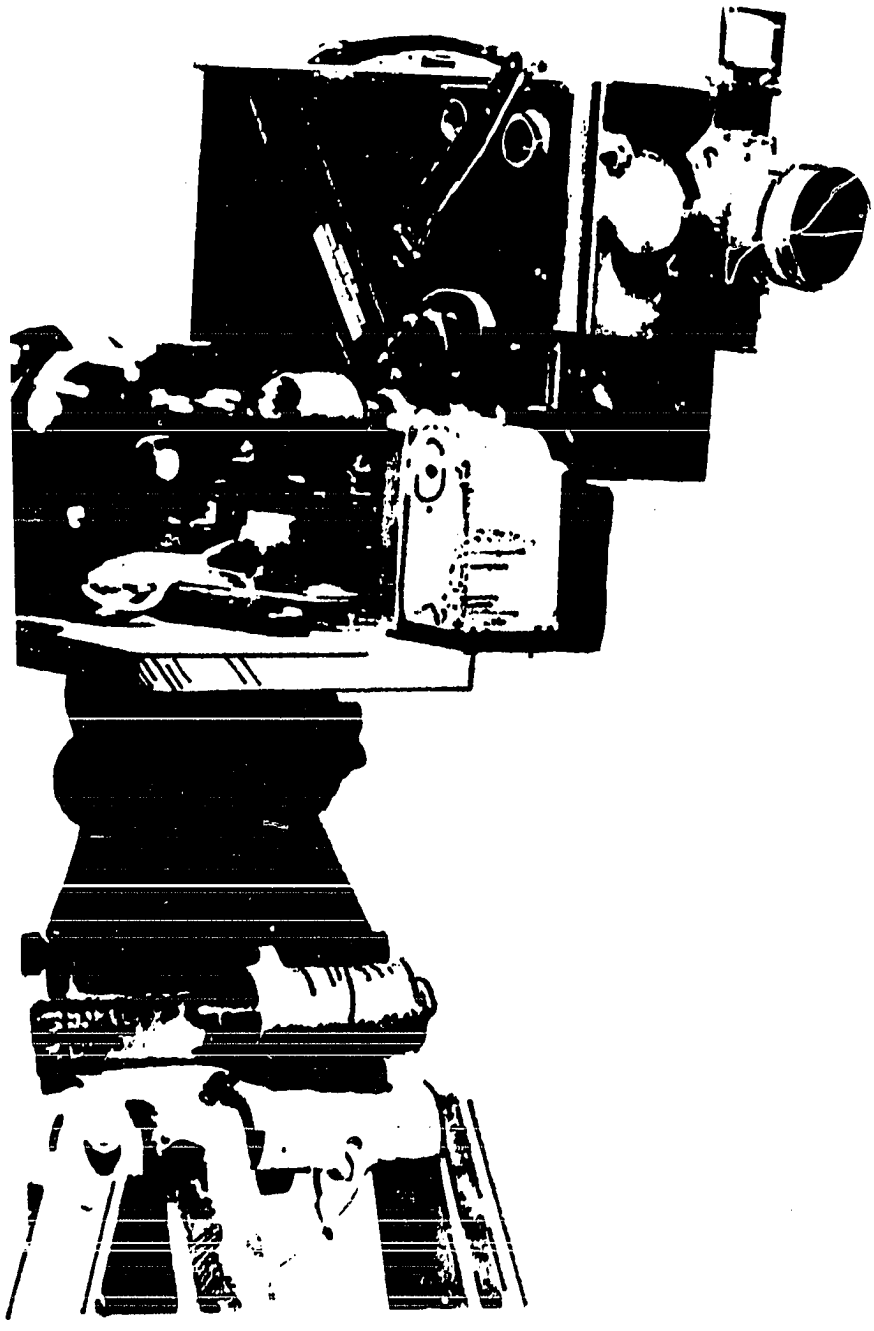

Figure 14. Time-lapse camera

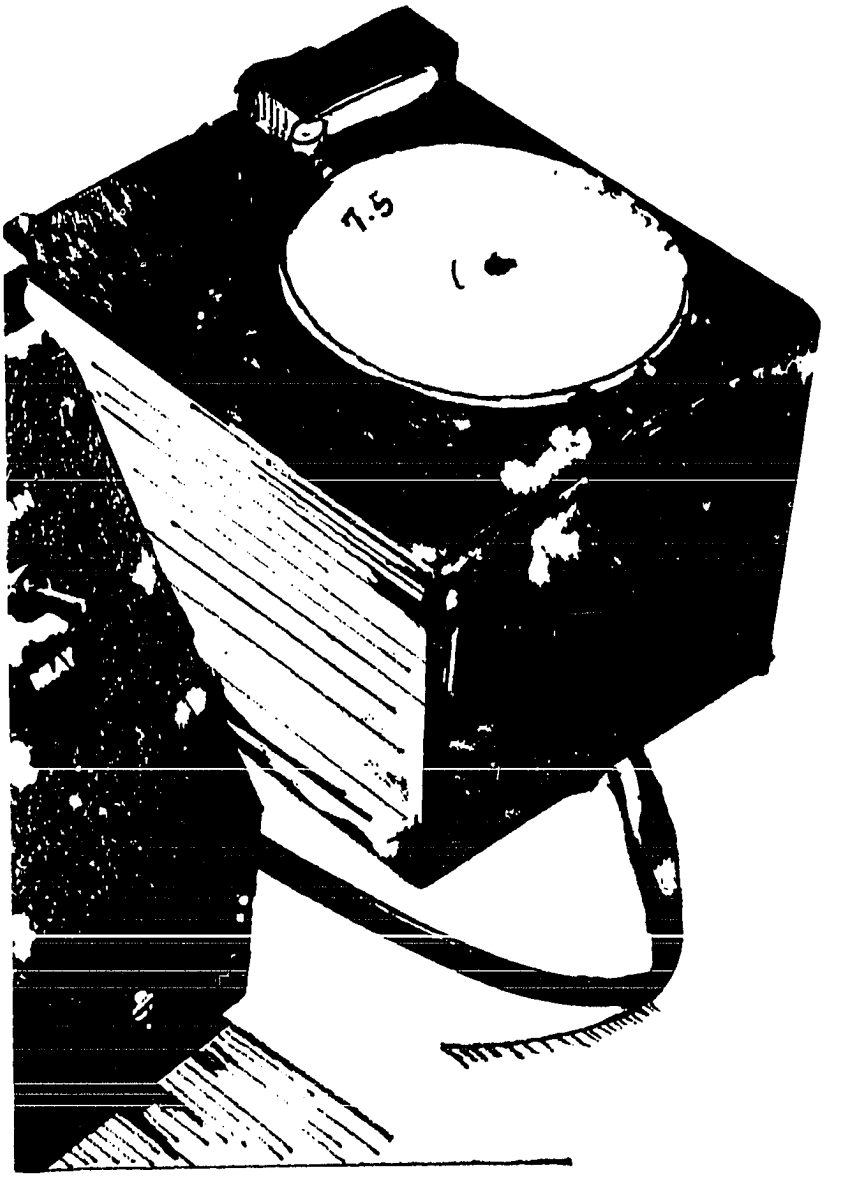

Figure 15. Time-lapse control unit

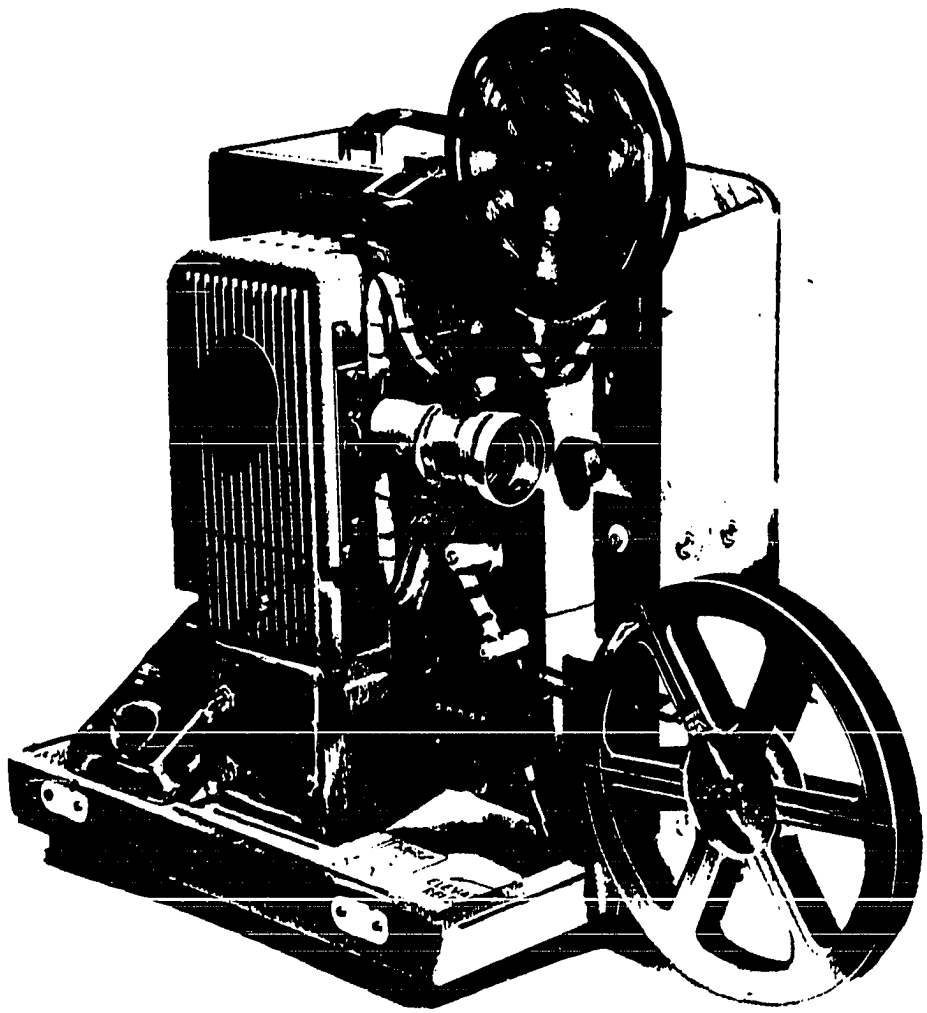

Figure 16. Film analyzer

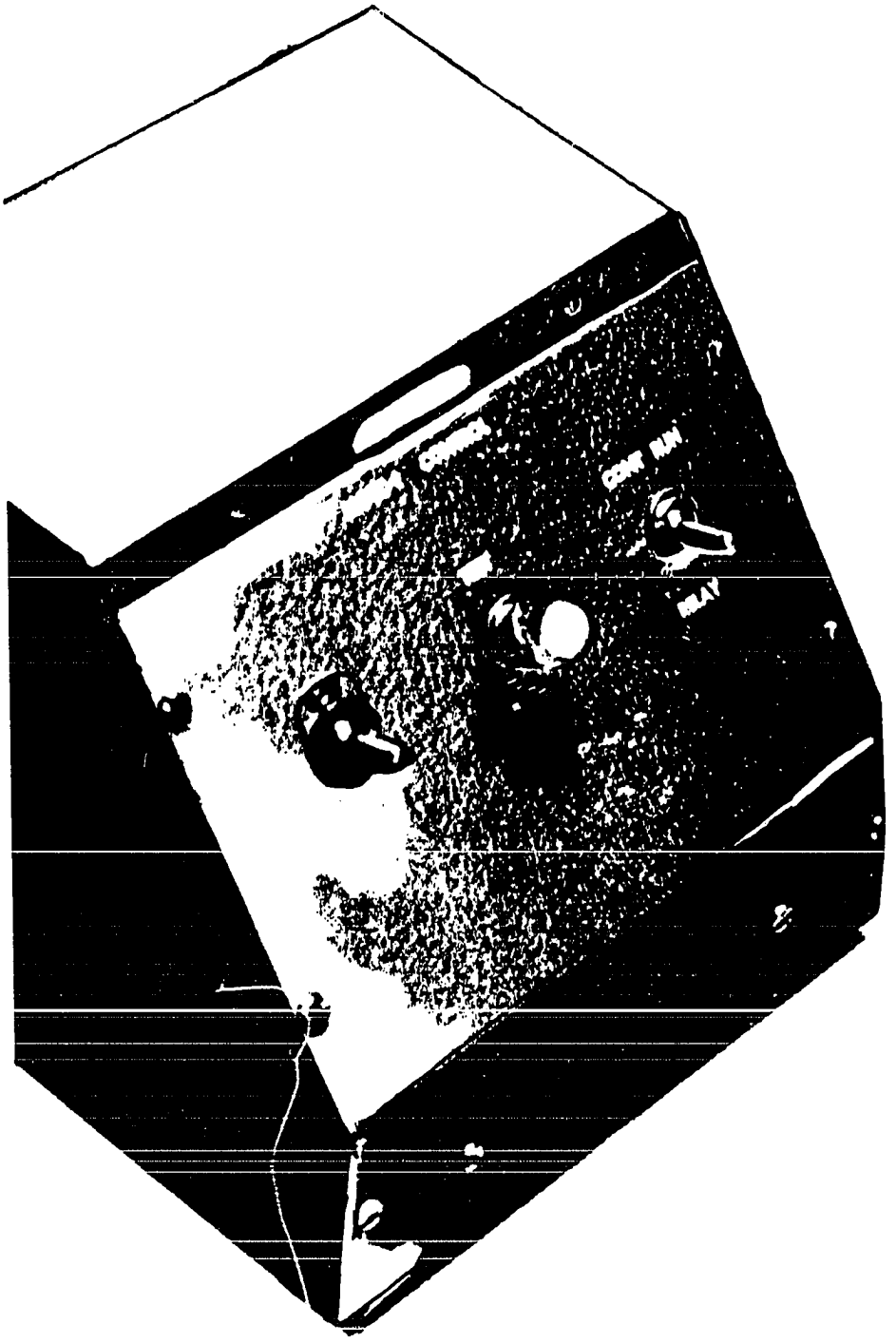

Figure 17. Motor control unit

APPENDIX E: LETTERS TO PRINCIPALS

To: Principal

From: Eric Williams

Date: March 22, 1976

In completing my Ph.D. work in Curriculum and Instructional Media at Iowa State University I have identified the problem of characterizing the activities in public school media centers for the dissertation.

The approach I'm using involves the use of conventional survey forms as well as a new photographic technique employing time-lapse film. I have checked with _____, principal of the junior high schools in _____, as well as the people in charge of the media centers. They are agreeable to allowing me to use _____ and _____ junior high as sites for the study. Of course, the names of the schools and other characteristics that would permit a comparison between the two schools will not be used in the dissertation. The primary purpose of the project is to perfect a technique for documenting activities in a media center. There will be no attempt to evaluate the significance or worth of the activities.

Sincerely,

Eric Williams

Graduate Student

cc/

Dr. Harold Dilts
Dr. Roger Volker

Subject: Confirmation of Study

To: Principal

From: Eric Williams

Date: March 22, 1976

I am completing my Ph.D. work in Curriculum Development and Instructional Media at Iowa State University in Ames, Iowa and one of the requirements is the completion of a dissertation on an education topic.

I chose to research and develop a new approach for describing public secondary school instructional media center programs (IMC). Part of this descriptive study involves a questionnaire surveying of people who use the public secondary IMC facilities and services. Part two of this study involves a 16-mm time-lapse negative film recording of the activities in the IMC. As previously approved, the IMCs of _____ and _____ will serve as the study sites for my research. The filming will commence on Monday March 22, 1976, between the hours of 8:00 AM to 4:00 PM. This schedule will include March 23, 24, 29, and 30. Also, the questionnaires will be administered on one of these days.

As agreed, the names of the two schools used in the study will not appear in my completed dissertation. Additionally, a summary of the findings of the study will be provided to you.

Thank you very much for your help. I certainly appreciate it.

Sincerely,

Eric Williams,
Graduate Student

cc/ Dr. Harold E. Dilts
Dr. Roger P. Volker